



***UM8500***

## **INTEGRATION GUIDE**

**NEC**

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up the integration.

### 1 Review the system and equipment requirements

Verify that all phone system and messaging system requirements have been met. See [“Requirements” on page 3](#).

### 2 Set up UNIVERGE UM8500 for the integration.

See [“Configuring UNIVERGE UM8500 for the integration” on page 5](#).

### 3 Connect the systems.

See [“Connecting the systems” on page 6](#).

### 4 Set up the phone system for the integration.

See [“Programming the phone system” on page 9](#) for instructions on how to program the Avaya Definity G3, System 75, or System 85 G2 phone system.

### 5 Test the phone extensions

Test the phone extensions that are set up for the integration. See Appendix B, [“Testing the extensions” on page 338](#).

### 6 Run the Learn Tones utility

Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, [“Learning the phone system tones” on page 339](#).

## Requirements

Before setting up the Avaya with D82 integration, confirm that the site meets the following requirements and that all of the necessary components are available:

### Phone system

- Avaya Definity G3, System 75, or System 85 G2.
- For each voice messaging port, one Digital Network Interface Circuit (DNIC) port which emulates a 7434D or 8434D digital phone, installed and set up as a voice messaging port.
- The phone system ready for the integration as described in the phone system manufacturer's documentation.
- A type 66 interconnect block for each PBX station interface cable.

### UNIVERGE UM8500 server

- The Dialogic® D82™ voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sales representative.

- An 18-pair PBX station interface cable for each voice board.
- UNIVERGE UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration with the appropriate number of voice messaging ports.

## Integration description

The Avaya with D82 integration uses digital lines to connect the phone system and the messaging system. The phone system digital voice messaging ports connect to D82 voice boards in the UM8500 server. A D82 voice board emulates up to eight digital phones.

### Integration features

The Avaya with D82 integration with UM8500 provides the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.

**Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Lucent
Model	Definity G3
Switch software version	All with digital 7434D emulation
Integration	Direct Digital

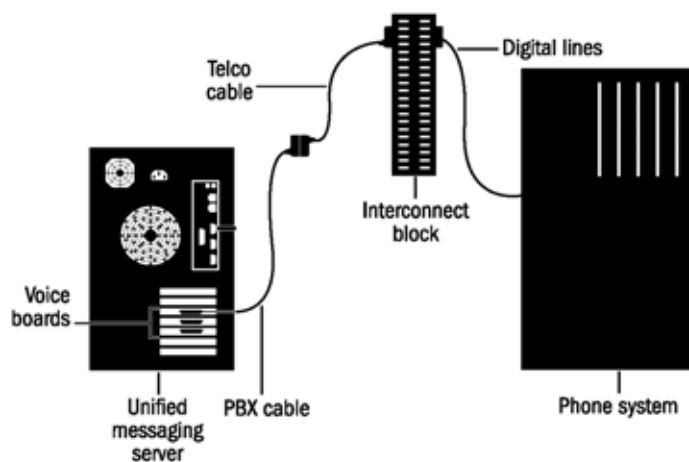
- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## Connecting the systems

After installing all of the required hardware on the messaging system, perform the following procedure to connect the phone system to the messaging system.

To install required messaging system hardware, such as D82 boards, see the *Installation Guide*.

### System connections





## To connect the phone system and UM8500 server

- 1 Connect the phone system digital lines 1-8 (or 1-4 on a 4-port system) to a type 66 interconnect block. See the following tables for cabling requirements.
- 2 Connect an 18-pair PBX station interface cable to an Amphenol connection on the type 66 interconnect block.
- 3 Connect the other end of the PBX station interface cable to a telco cable.
- 4 Connect the other end of the telco cable to a D82 board installed in the UM8500 server.
- 5 Repeat steps 1 through 4 for each additional D82 board installed.

### D82 Two-wire pinouts

Phone line number	Type 66 Block pair	Pin number	Pair color	Lead designation
1	2	27	white-orange	T1
		2	orange-white	R1
2	4	29	white-brown	T2
		4	brown-white	R2
3	6	31	red-blue	T3
		6	blue-red	R3
4	8	33	red-green	T4
		8	green-red	R4
5	10	35	red-slate	T5
		10	slate-red	R5
6	12	37	black-orange	T6
		12	orange-black	R6
7	14	39	black-brown	T7
		14	brown-black	R7
8	16	41	yellow-blue	T8
		16	blue-yellow	R8

### D82 Four-wire pinouts

Phone line number	Pin number	Pair color	Lead designation
1	26	white-blue	TXR1
	1	blue-white	TXT1
	27	white-orange	PXR1
	2	orange-white	PXT1
2	28	white-green	TXR2
	3	green-white	TXT2
	29	white-brown	PXR2
	4	brown-white	PXT2
3	30	white-slate	TXR3
	5	slate-white	TXT3
	31	red-blue	PXR3
	6	blue-red	PXT3
4	32	red-orange	TXR4
	7	orange-red	TXT4
	33	red-green	PXR4
	8	green-red	PXT4

**D82 Four-wire pinouts, continued**

Phone line number	Pin number	Pair color	Lead designation
5	34	red-brown	TXR5
	9	brown-red	TXT5
	35	red-slate	PXR5
	10	slate-red	PXT5
6	36	black-blue	TXR6
	11	blue-black	TXT6
	37	black-orange	PXR6
	12	orange-black	PXT6
7	38	black-green	TXR7
	13	green-black	TXT7
	39	black-brown	PXR7
	14	brown-black	PXT7
8	40	black-slate	TXR8
	15	slate-black	TXT8
	41	yellow-blue	PXR8
	16	blue-yellow	PXT8

# Programming the phone system

After connecting the phone system to the UM8500 server, perform the procedures to set up the phone system for the integration. Refer to the phone manufacturer's documentation for details.

- For the Avaya Definity G3 or System 75 phone system, see the setup steps below.
- For the Avaya System 85, see the setup steps on page 15.

## Avaya Definity G3 or System 75 phone system setup steps

### 1 Set up the voice messaging extensions.

For the Definity G3, the D82 board emulates the Avaya 8434D digital phone. For the System 75, the D82 board emulates the Avaya 7434D phone. See [“To set up the voice messaging extensions as digital phones” on page 10](#).

### 2 Set up the hunt group.

Set up a hunt group to include all of the voice messaging ports. See [“To set up a hunt group” on page 11](#).

### 3 Set up message waiting indication.

Dedicate one of the voice messaging ports to control the phone system message waiting indication. See [“To set up message waiting indication for a port” on page 12](#).

### 4 Set up a coverage path.

The phone system uses a coverage path to forward unanswered or busy calls. See [“To set up a coverage path” on page 13](#).

### 5 Set up subscribers.

Assign the voice messaging coverage path to all subscribers. See [“To set up subscribers” on page 14](#).

## To set up the voice messaging extensions as digital phones

- 1 At the phone system programming terminal, type `add station` followed by a voice messaging extension, then press **ENTER**. For example, extension: 501 is used in the following example screen.
- 2 On page 1 of the Station screen, in the **Name** field, type a name that includes the voice messaging extension number, the maximum is 16 characters. For example, **Voice Mail 501** is used in the following example screen.
- 3 For the 7434D emulation, set the **Type** field to **7434D**. For the 8434D emulation, set the **Type** field to **7405ND**. If the **Type** field is set to **8434D**, voice mail will not integrate with the phone system.

### NOTE

7405ND is not a phone type. It only enables numeric display. To use 7405ND, enable it in the System-parameter Features screen when programming the phone system.

- At the programming screen type,  
`change system-parameter features.`
  - On page 5, set **7405ND Numeric Terminal Display** to **y**.
- 4 In the **Feature Options** section, type the field settings as shown in the following example screen. Refer to the phone system manufacturer's documentation for setting up the other fields left blank in the example screen.
  - 5 Go to page 2 of the Station screen.
  - 6 In the **Button Assignments** section, type `call-app` in fields 1 and 2.
  - 7 Go to page 4 and in the **Display Button Assignments** section, confirm that the value for field 1 is **Normal**.
  - 8 Press **ENTER** to complete the setup.
  - 9 Repeat steps 1 through 8 for each voice messaging port extension.

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STATION

Extension: 501  
Type: 7434D  
Port: \_\_\_\_\_  
Name: Voice Mail 501

Lock Messages? n  
Security Code: \_\_\_\_\_  
Coverage Path: \_\_\_\_\_

CDR: \_\_\_\_\_  
COS: \_\_\_\_\_

FEATURE OPTIONS

LWC Reception? none  
LWC Activation? y  
CDR Privacy? \_\_\_\_\_  
Redirect Notification? n  
Bridged Call Alerting? n  
Active Station Ringing: \_\_\_\_\_  
Data Module? n  
Display Module? y

Coverage Msg Retrieval? n  
Auto Answer: \_\_\_\_\_  
Data Restriction? y  
Idle Appearance Preference? n  
Restrict Last Appearance? y  
Feature Module? n  
Coverage Module? n

Display Language: \_\_\_\_\_

Disp Client Redir? \_\_\_\_\_  
Select Last Used Appearance? \_\_\_\_\_

### NOTE

The example above shows completed fields for the 7434D digital phone emulation.

## To set up a hunt group

- 1 At the phone system programming terminal, type `add hunt` next then press **ENTER**.
- 2 On page 1 of the Hunt Group screen, set up a hunt group number, extension, and name.

For example, the group number **1**, the group extension **500**, and the group name **Voice Mail** are used in the example screen.

- 3 In **Group Type**, type `ucd` or `c i r c`. In **Queue?**, type `n`. Refer to the phone system manufacturer's documentation for setting up the other fields.

### NOTE

The ACD field should be set to No. UM8500 does not support voice messaging ports set up for ACD.

- 4 Go to page 3 and in the **Group Member Assignments** section, type all of the voice messaging extensions that answer hunt group calls.

### NOTE

Do not add ports that are set up on the voice messaging system with Dial, Lamp, or Msg port status codes.

- 5 Press **ENTER** to complete the setup.

Page 1 of 7

HUNT GROUP

Group Number: 1	Group Extension: 500	Group Type: ucd
Group Name: Voice Mail		ACD: N
Queue? N		Vector? _____
Security Code: _____	Night Service Destination:	COR: _____
ISDN Call Disp: _____	Coverage Path:	

Page 3 of 7

HUNT GROUP

Group Number: 1	Group Extension: 500	Group Type: ucd
Member Range Allowed:	Administered member (min/max): 0 / 0	
	Total Administered Members: 0	

GROUP MEMBER ASSIGNMENTS

Ext	Name	Ext	Name	Ext	Name
1: 501	Voice Mail Port1	14:		27:	
2: 502	Voice Mail Port2	15:		28:	
3: 503	Voice Mail Port3	16:		29:	
4: 504	Voice Mail Port4	17:		30:	
5: 505	Voice Mail Port5	18:		31:	
6: 506	Voice Mail Port6	19:		32:	
7: 507	Voice Mail Port7	20:		33:	

## To set up message waiting indication for a port

### NOTE

The extension must be set up as a 7434D with message waiting indication.

- 1 At the phone system programming terminal, type `change station` followed by the voice messaging extension that will control message waiting indication, then press **ENTER**. For example, extension 501 is used in the following example screen.
- 2 On page 1 of the Station screen, set up the **Port** field according to the phone system requirements.
- 3 In the Feature Options section, type the field settings as shown in the screen below. Refer to the phone system manufacturer's documentation for setting up the other fields left blank in the following example screen.
- 4 Go to page 2 and in the **Button Assignments** section, type `call-app` in fields 1 and 2.
- 5 Go to page 3 and in the **Feature Button Assignments** section, type the following field settings:

Field	Setting
33	lwc-store
34	lwc-cancel

- 6 Go to page 4 and in the **Display Button Assignments** section, confirm that the value for field 1 is **Normal**.
- 7 Press **ENTER** to complete the setup.

Page 1 of 4

STATION

Extension: 501  
Type: 7405ND  
Port: \_\_\_\_\_  
Name: Voice Mail 501

Lock Messages? n  
Security Code: \_\_\_\_\_  
Coverage Path: \_\_\_\_\_

CDR: \_\_\_\_\_  
COS: \_\_\_\_\_

FEATURE OPTIONS

LWC Reception? none  
LWC Activation? n  
CDR Privacy? \_\_\_\_\_  
Redirect Notification? n  
Bridged Call Alerting? n  
Active Station Ringing: \_\_\_\_\_  
Data Module? n  
Display Module? y  
Display Language: \_\_\_\_\_

Coverage Msg Retrieval? n  
Auto Answer: \_\_\_\_\_  
Data Restriction? y  
Idle Appearance Preference? n  
Restrict Last Appearance? y  
Feature Module? n  
Coverage Module? n  
Disp Client Redir? \_\_\_\_\_  
Select Last Used Appearance? \_\_\_\_\_

### NOTE

The example above shows completed fields for the 8434D digital phone emulation.

## To set up a coverage path

- 1 At the phone system programming terminal, type `add coverage path` followed by a new coverage path number, such as number 1, then press **ENTER**.

In the Coverage Criteria section of the Coverage Path screen, set the field settings based on the transfer options chosen. The table below describes how the system uses the setting when it is set to **Yes**.

Field	Description
Active	If any call appearance is in use, the call forwards.
Busy	If all call appearances are in use, the call forwards
Don't Answer	If the call is unanswered, the call forwards after the specified number of rings.
All	All calls immediately forward.

Refer to the phone system manufacturer's documentation for more details on setting up the coverage path fields.

- 2 Press **ENTER** to exit this screen.

## To set up subscribers

- 1 At the phone system programming terminal, type `change station` followed by the subscriber's extension number, then press **ENTER**. For example, extension 555 is used in the screen below.
- 2 For the 7434D emulation only; in the **Name** field, confirm that the name includes the subscriber's extension number, the maximum is 15 characters. This restriction does not apply to the 8434D (7405ND) emulation.

### NOTE

The **Name** field must be set up correctly for the integration to work. For more details on how to set up these fields, refer to the phone system manufacturer's documentation.

- 3 In the **Coverage Path** field, type the coverage path number created in step 1 of the "To set up the coverage path" procedure on the previous page, then press **ENTER**. For example, the number 1 is used in the screen below.
- 4 Repeat steps 1 through 3 for each subscriber extension.

Page 1 of 4

STATION

Extension: 501  
Type: 7434D  
Port: \_\_\_\_\_  
Name: Voice Mail 501

Lock Messages? n  
Security Code: \_\_\_\_\_  
Coverage Path: \_\_\_\_\_

COR: \_\_\_\_\_  
COS: \_\_\_\_\_

FEATURE OPTIONS

LWC Reception? none  
LWC Activation? y  
CDR Privacy? \_\_\_\_\_  
Redirect Notification? n  
Bridged Call Alerting? n  
Active Station Ringing: \_\_\_\_\_  
Data Module? n  
Display Module? y  
Display Language: \_\_\_\_\_

Coverage Msg Retrieval? n  
Auto Answer: \_\_\_\_\_  
Data Restriction? y  
Idle Appearance Preference? n  
Restrict Last Appearance? y  
Feature Module? n  
Coverage Module? n  
Disp Client Redir? \_\_\_\_\_  
Select Last Used Appearance? \_\_\_\_\_

## Next step

Test the extensions. See Appendix B, "[Testing the extensions](#)" on page 338.



## Avaya System 85 phone system setup steps

Perform the following steps to set up the Avaya System 85 for the integration. Refer to the phone manufacturer's documentation for more details on these steps.

### 1 Set up the voice messaging ports.

The D/82 board emulates the Avaya 7434D phone. See [“To set up voice messaging ports” on page 15](#).

### 2 Set up the message waiting indication.

Set up one of the voice messaging extensions to control the phone system message waiting indication. Refer to the manufacturer's documentation for more detailed instructions.

### 3 Set up subscribers for the integration.

Assign the voice messaging coverage path to each subscriber. See [“To set up voice messaging ports” on page 15](#).

### 4 Set up a coverage path.

Set up a basic coverage path to the first voice messaging extension number. See [“To set up a coverage path” on page 15](#).

Before connecting the UM8500 server to the phone system, perform the following steps to set up the phone system for the integration. For detailed phone system procedures, refer to the manufacturer's documentation.

## To set up voice messaging ports

### 1 Set up the system to detect hardware.

The phone system must detect the boards and other special phone system hardware that has been added or enabled.

### 2 Assign the extension numbers that the phone system will use to access the messaging system. Program extensions as digital 7374D phones. To set up the voice messaging extensions as 7434D digital phones, see [“To set up subscriber extensions” on page 16](#).

### 3 Set up a hunt group to include all of the voice messaging ports.

If the phone system supports hunt group access codes, assign a hunt group access code for the messaging system. This code is the number that subscribers dial internally to connect to the messaging system.

Some phone systems do not have hunt groups. A hunt group can be simulated by forwarding each messaging system extension to the next extension when the extension is busy.

## To set up a coverage path

### 1 Go to Proc 011 and set up a coverage path to the extension number of the first voice messaging port.

### 2 In the **Word 1** section, complete fields 1 through 9. Below is an example of these field settings. There are no restrictions on coverage paths. Several coverage paths can be created to address specific situations. Refer to the phone manufacturer's documentation for the field setting options and descriptions.

Field	Setting	Call coverage paths
1	xxxx	Coverage path group number
2	3	Cover on active — all types of calls
3	3	Cover on busy — all types of calls
4	0	Do not cover on all calls
5	3	Cover on did not answer — all types of calls.
6	3	Cover on third ring

Field	Setting Call coverage paths	
7	8	Coverage point is an extension
8	1	Coverage point number (1-3)
9	xxxx	7405 D extension

### To set up subscriber extensions

- 1 Go to the **Word 1** section of Proc 012.
- 2 In the **Name** field, type a subscriber's name and extension number. The full extension number must appear in the first 16 characters of the subscriber's name.
- 3 Go to the **Word 2** section of Proc 000.
- 4 In field **6**, type the coverage path group number.
- 5 Go to Proc 063 and set up the automatic message waiting lamp.
- 6 Repeat steps 1 through 5 for each subscriber.

### Next step

Test the extensions. See Appendix B, "[Testing the extensions](#)" on page 338.

# Troubleshooting

If one of the problems listed below is encountered, try the corrective actions listed for the problem. If these actions do not correct the problem, or if the problem is not described here, contact Technical Support.

Problems	Corrective actions
<p>Calls to the messaging system do not connect.</p> <p>Calls to the messaging system connect, but no prompts play.</p> <p>Callers entering an extension are always answered with the opening greeting instead of the personal greeting.</p> <p>Calls are not integrating with the phone system.</p> <p>Easy message access is not functioning: subscribers access their mailboxes and hear the opening greeting instead of personal options.</p> <p>Calls are forwarded to the opening greeting instead of a subscriber's mailbox.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• Confirm that expansion boards are firmly seated in the computer expansion slots, and that each board is properly configured. See "Installing or reseating voice boards" in the appendix titled "Adding or changing voice boards" in the <i>Installation Guide</i>.</li> <li>• See the <i>Installation Guide</i> and check the voice board settings. Confirm that easy message access is set up correctly.</li> <li>• Confirm that the PBX station interface cables between the systems are connected and functioning correctly. Try testing each cable or replacing each with a different cable.</li> <li>• Confirm that the correct phone system model is set up on the messaging system. On the UM8500 Administrator, select <b>Switch</b> and confirm that the correct phone system manufacturer and model type are displayed.</li> <li>• To get stable caller information: <ul style="list-style-type: none"> <li>• In the integration file, modify the value of the "StableDisplayPause" key in the <b>Configuration</b> section. The value is specified in milliseconds. Initially increase it by 100 ms, then restart the messaging system.</li> <li>• In the integration file, modify the value of the "CallInfoTimeout" key. The default value is 5000 ms.</li> </ul> </li> </ul>
<p>Callers are asked to hold or complain that they are on hold for too long when calling an extension that is using "Do not disturb" mode.</p>	<p>Typically this happens because the messaging system is set up to use the await-answer transfer type and call holding for that extension. Call holding must be turned off when using the "Do not disturb" mode on the phone.</p>
<p>The phone system cabinet that contains the voice messaging station cards sporadically resets itself.</p>	<p>The phone system might be overloaded due to an increase in polling traffic between the D/82 boards and the system. Spread out the load by distributing the voice messaging extensions among multiple station cards on the phone system. For example, distribute three or fewer voice messaging extensions per station card.</p>
<p>Subscriber's phones are not forwarding calls on ring-no-answer or on busy.</p>	<p>Confirm that the subscriber's phone is set up on the phone system to forward calls to the voice messaging hunt group pilot number on ring-no-answer and on busy.</p>
<p>Subscriber message waiting indication fails.</p> <p>Message waiting indicators are not activated after messages are left.</p> <p>Message waiting indicators are not turned off after messages are retrieved.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• On the UM8500 Administrator, on the Ports page verify that at least one of the voice messaging ports is set for MWI dialout.</li> <li>• On the UM8500 Administrator, confirm that MWI is enabled for the subscriber.</li> </ul>
<p>Await-answer calls are released before the personal greeting is played.</p>	<p>See <a href="#">"To run the Learn Tones utility" on page 340</a>.</p>



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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and UM8500 server requirements have been met. See [“Requirements,”](#) below.
- 2 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 22.
- 3 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 23.
- 4 Test the connection to the central office.**  
See [“Testing the Centrex connection”](#) on page 24.
- 5 Test the phone extensions that are set up for the integration.**  
Test the phone extensions that are set up for the integration. See [“Testing the extensions”](#) on page 338.
- 6 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See [“Learning phone system tones”](#) on page 340.

## Requirements

The steps to set up the Centrex Simplified Message Desk Interface (SMDI) integration require the following:

### Phone system

- Centrex 1AESS, 5ESS or DMS100 service.
- A Centrex service SMDI package with one SMDI 4-wire private data link connected to the external modem.
- A type 202T or 212T external modem set to 1200 baud.
- The data link of the external modem connected with an RS-232 serial cable to a serial port on the UM8500 server, COM1 is the default.
- The central office voice messaging lines must be connected to the voice boards in the UM8500 server.

### UNIVERGE UM8500 server

- The Dialogic analog voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

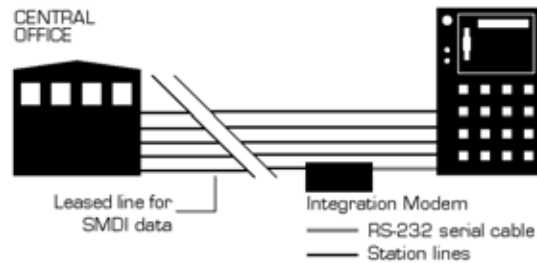
For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- An available serial port, COM1 is the default.

## Integration description

### How the integration works

The Centrex/SMDI integration uses a data link, which consists of an RS-232 serial cable, a central office leased line, and an external integration modem. The integration modem provides the data link connection between the Centrex system at the central office and the messaging system server. This modem, which is connected to the messaging system server through the RS-232 serial cable, must be compatible with the type of modem at the central office, type 202T or 212T. The integration modem is separate from the modem in the messaging system server, which is used for remote maintenance. The Centrex system voice messaging lines connect to the analog voice boards in the messaging system server. The following illustration shows the required connections.



The central office system sends the following information through the data link:

- The called party's extension
- The reason for the forward, for example: the extension is busy, does not answer, or is set to forward all calls
- The calling party's extension, for internal calls

uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The Centrex/SMDI integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Centrex
Model	1AESS, 5ESS, DMS100
Switch software version	All
Integration	Serial

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.



# Programming the phone system

Perform the procedure to program the phone system for the integration. Using programming options other than those described in the following procedure can affect system performance.

## To program the phone system

Instruct the Centrex service provider to set up the phone system in the following manner:

- 1 Program the message desk lines as a multiline hunt group.
- 2 Enable switchhook flash transfer capability on each message desk line.
- 3 Enable SMDI caller ID on each subscriber extension.
- 4 For each subscriber extension, set the call forwarding options to: unrestricted source; forward when the extension is not answered; and forward when the extension is busy.

## Testing the Centrex connection

Perform the following procedures before testing the integration as instructed in the *Installation Guide*.

### To confirm that there is a data link connection to the central office

- Confirm that the carrier detect (CD) light on the integration modem is lit when the modem is connected to the data link. This indicates that there is a carrier tone from the central office.

### To confirm that there is a connection between the integration modem and the messaging system server

- 1 Confirm that the request-to-send (RTS) light is lit when UM8500 is running with the SMDI option enabled.
- 2 If the RTS light is not lit, perform one or more of the following corrective actions:
  - In the UM8500 Administrator, go to **System > Switch**, then confirm that the **Model** box shows a Centrex SMDI model.
  - Confirm that the modem is connected to the correct COM port.
  - Replace the RS-232 serial cable that connects the messaging system server to the integration modem.
  - Confirm that the integration modem is set up according to the manufacturer's requirements.

# ■ Cisco Call Manager

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

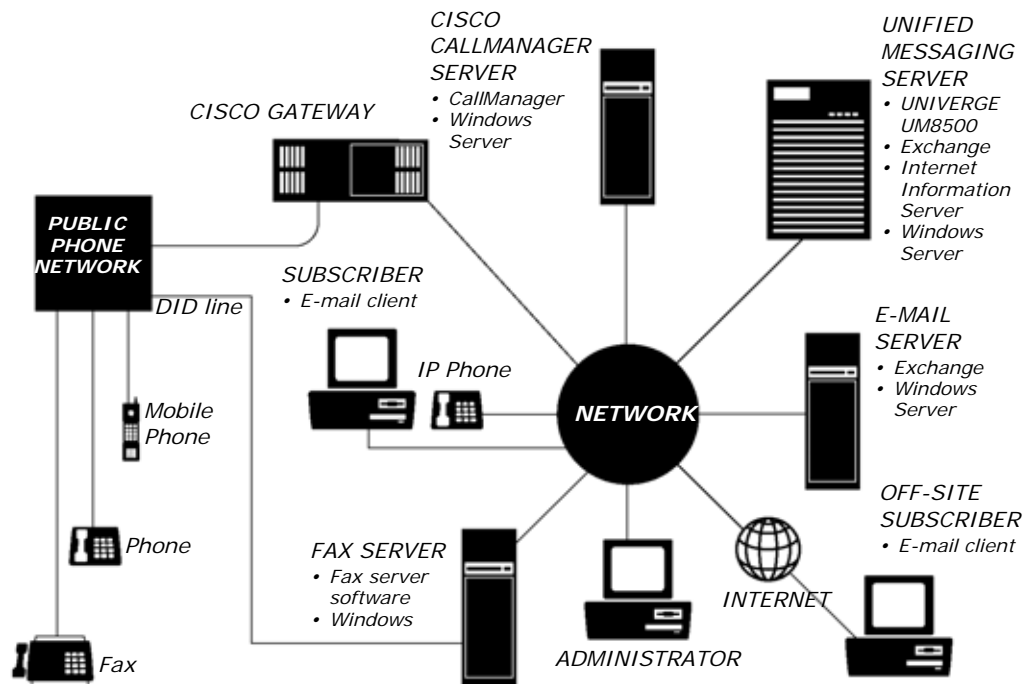
- 1 Review the system and equipment requirements.**  
Verify that all Cisco CallManager and UNIVERGE UM8500 system requirements have been met. See [“Requirements,”](#) below.
- 2 Set up Cisco CallManager.**  
See [“Setting up Cisco CallManager”](#) on page 30.
- 3 Install and configure the TAPI service provider on the UNIVERGE UM8500 server.**  
See [“Installing and configuring the TAPI service provider”](#) on page 36.

## Requirements

- UNIVERGE UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key with the integration type set to “TAPI” or “Multiple,” with the appropriate number of voice messaging ports enabled.
- Cisco CallManager software version 3.05 or later.
- Cisco Unity-CM TSP version 6.0(2) or later.
- A gateway compatible with Cisco CallManager.
- Cisco licenses for all phone lines, IP phones, and other H.323 compliant devices or software that will be connected to the network, as well as one license for each port.
- IP phones.
- A LAN connection at each location where an IP phone will be plugged into the network.

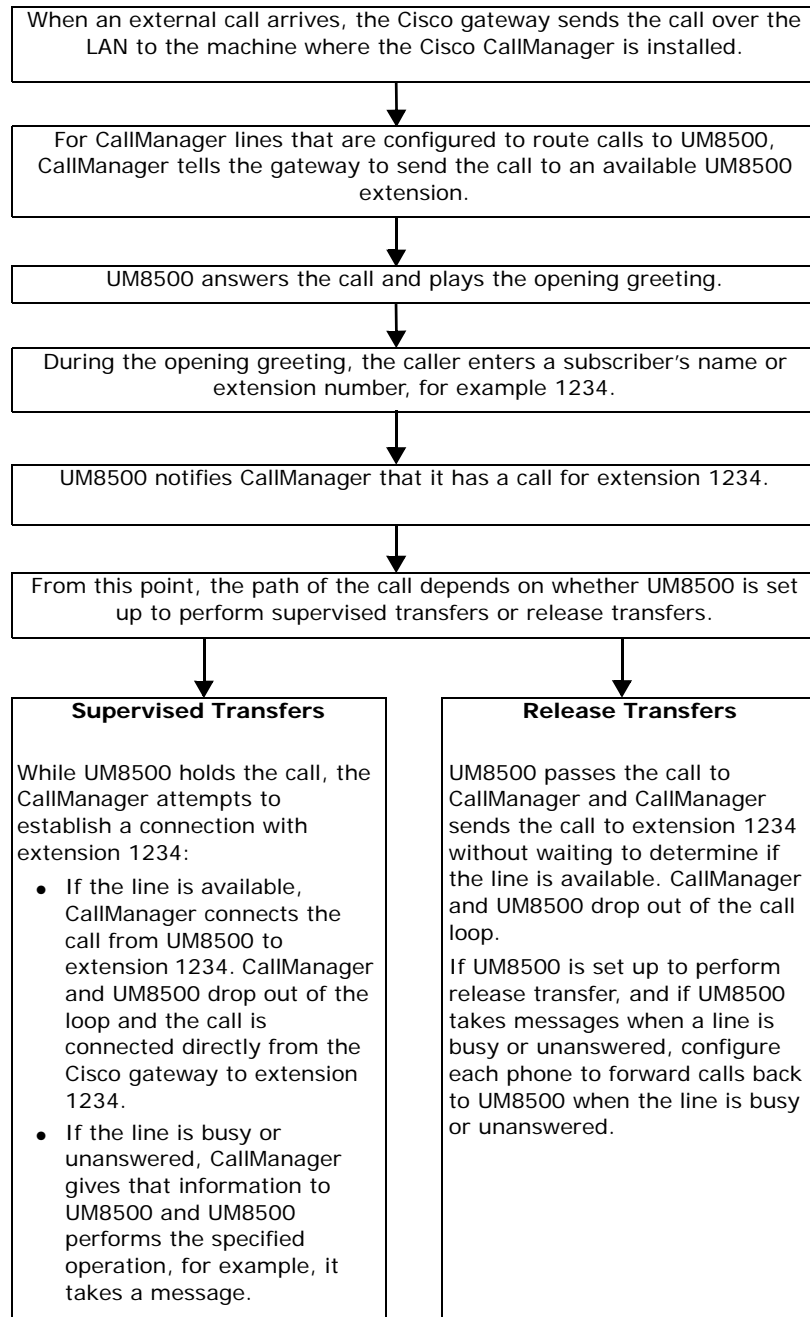
## Integration description

The following illustration shows a full-featured UM8500 installation integrating with the Cisco Architecture for Voice, Video and Integrated Data (AVVID) network.



## How the integration works

The following is an overview of the path an external call takes through the Cisco AVVID network. The call travels from the Cisco gateway or router and CallManager software, through UM8500, and on to a subscriber's extension.



## Integration features

The Cisco CallManager integration offers the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's messaging system. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** receives caller ID information from Cisco CallManager, if available. This information is displayed in the message subject line in Microsoft Outlook® or other desktop messaging applications.

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.

**Identified subscriber messaging.** automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension that the call originated from.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Setting up Cisco CallManager

Follow the procedures in this section to set up CallManager to work with UM8500.

## To install Cisco CallManager

### NOTE

The Cisco CallManager Installation disc is not shipped with UM8500. If you do not have the installation disc, contact the Cisco reseller.

- 1 Insert the *Cisco CallManager Installation* disc into the disc drive on the CallManager server.
- 2 If the startup program starts automatically, follow the screen prompts. Otherwise, run **Setup.exe** from the disc.
- 3 After the installation is complete, open Cisco online Help. Click **Start**, then select **Programs > Cisco CallManager 3.2 > Cisco Help > System Guide**. The Cisco Help appears in Internet Explorer.
- 4 In the left frame, select **Getting Started > Installing**.
- 5 Follow the procedures for installing and configuring Cisco CallManager. Do not perform the last step until the following procedures have been performed:
  - The “[To disable call waiting](#)” procedure, below
  - The “[To add TAPI phone lines to Cisco CallManager](#)” procedure, below.

### CAUTION

Do not install the Cisco Messaging interface. It can cause UM8500 to malfunction.

## To disable call waiting

- 1 On the Cisco CallManager server, click **Start**, then select **Programs > Cisco CallManager 3.2 > CallManager Administration**.
- 2 On the Cisco CallManager Administration toolbar, click **Configuration**. The System screen appears.
- 3 Scroll down to the System Parameters area, and click **Configure**.
- 4 Confirm that Call Waiting Enable is set to **Off**. If not, click **Off**, then click **Update** to save the change.

### NOTE

Call waiting must be disabled for UM8500 TAPI ports, but call waiting can be enabled for other devices if required.

## To add TAPI phone lines to Cisco CallManager

- 1 On the Cisco CallManager server, click **Start**, then select **Programs > Cisco CallManager 3.0 > CallManager Administration**.
- 2 On the Cisco CallManager Administration toolbar, click **Configuration**. The System screen appears.
- 3 Click **Device Wizard**. The Device Wizard–New screen appears.
- 4 Follow the screen prompts, and enter the values shown in the table on the following page.

### NOTE

If it is expected that the system will need more TAPI lines, and there are enough licenses available, add the additional lines now.



- 5 After the values are entered, the Device Wizard–Confirmation screen appears. Click **Finish**. The Device Wizard–Finish screen appears.
- 6 On the Device Wizard–Finish screen, click **OK**, **reset now**.
- 7 Click **Continue** to confirm that the system should reset the TAPI port now.
- 8 After receiving confirmation that the device was reset, click **Continue**.
- 9 Repeat steps 4 through 8 for each TAPI line.
- 10 On the Cisco CallManager Administration toolbar, click **Configuration**, then click **Cisco IP Phone**. The Phone list shows the TAPI lines that have been added, as well as any new IP phones and other devices.
- 11 Click the name of the added TAPI line. A Device Information screen appears, showing the values entered for that line. Use the Device Information screen to correct any errors.
- 12 Write down the number of TAPI lines that were added and the assigned TAPI prefix name. This information will be needed when the Cisco TAPI service provider (TSP) telephony driver is configured on the messaging system server.
- 13 Close the Cisco CallManager Administration program, then go to the appropriate procedure:
  - If the site is using a version of CallManager at least 3.05 but prior to 3.2, go to “[To add uOne ports to CallManager version 3.05](#)” on page 32.
  - If the site is using CallManager 3.2 or later, go to “[To add voice mail ports to CallManager version 3.2 and later](#)” on page 34.

Field	Value
Device type	Click <b>TAPI port</b> .
Device name	Type a name for the TAPI port, for example, <code>tapi_01</code> .
Description	Optional. Type a brief description of the purpose, for example, <code>Customer Service</code> .
Device pool	Click <b>Default pool</b> .
Location	Click <b>Hub</b> .
How many lines do you want to assign to the device?	Type 1.
Directory number	Type the extension that will be connected to UM8500.
Display	Type the number that appears in a phone display when an external call arrives on this line.
Forward all	Leave this field blank.  <b>CAUTION!</b> Do not set a value for this field. If information appears in this field, the messaging system might operate improperly.
Forward busy	Type the extension of the next TAPI port in sequence. If this extension is the last TAPI port, then type the extension of the first TAPI port. If the directory number for this TAPI port is busy, calls are forwarded to the extension shown in this field.
Forward no answer	Type the extension of the next TAPI port in sequence. If this extension is the last TAPI port, then type the extension of the first TAPI port. If the directory number for this TAPI port is not answered, calls are forwarded to the extension shown in this field. The Forward no answer setting is used when the port is disabled or out of service.

## To add uOne ports to CallManager version 3.05

Add one uOne port to CallManager for each port that is being connected to the messaging system.

### NOTE

uOne ports and phones must be in the same calling search space, or the integration will not work.

- 1 In the Cisco CallManager Administration program, click **Device** > **Add a New Device**.
- 2 On the Add a New Device page, under **Device type**, click **Cisco uOne Port**.
- 3 Click **Next**, and the Cisco uOnePort Configuration page appears.
- 4 Enter values as shown in the table below.

Field	Value
Device name	<p>A name for the voice mail port, for example, "UM8500-1." Follow these instructions:</p> <ul style="list-style-type: none"><li>• In general, use the same prefix for every port, for example, "UM8500-."</li><li>• However, if CallManager is sending calls to more than one UNIVERGE UM8500 server, use a different prefix for the CallManager ports that are being connected to each UNIVERGE UM8500 server, for example, "UM85001-" and "UM85002-."</li><li>• Use prefixes that are 12 characters or less.</li><li>• Number the ports beginning with 1 and continuing in sequence.</li><li>• Do not begin port numbers with 0. For example, "UM8500-1" is a valid value; "UM8500-0" is not.</li></ul> <p><b>CAUTION!</b> If a uOne port is given a device name that does not conform to these conventions, UM8500 can not receive calls from that port.</p>
Description	<p>This field is automatically filled in with the name typed in the <b>Device name</b> field. These characters can be deleted and a new description can be typed.</p>
Device pool	<p>Click <b>Default pool</b>.</p>
Location	<p>Accept the default value of <b>None</b>.</p>
Directory number	<p>The extension that will be connected to UM8500.</p>
Forward all	<p>This field should be left blank.</p> <p><b>CAUTION!</b> Do not set a value for this field. If information appears in this field, UM8500 might operate improperly.</p>
Forward busy	<p>The extension of the next uOne port in sequence. If this extension is the last uOne port, then type the extension of the first uOne port. Alternatively, the last uOne port can be forwarded to the operator's extension. If the directory number for this uOne port is busy, calls are forwarded to the extension shown in this field.</p>
Forward no answer	<p>The extension of the next uOne port in sequence. If this extension is the last uOne port, then type the extension of the first uOne port. Alternatively, the last uOne port can be forwarded to the operator's extension.</p> <p>If the directory number for this uOne port is not answered, calls are forwarded to the extension shown in this field.</p> <p>Forward no answer is set in the event the port is disabled or out of service.</p>

- 5 Click **Insert**.
- 6 To add another uOne port, click **New**. When all the ports have been added, skip to step 8.
- 7 Repeat steps 4 through 6 for each additional port.
- 8 Close the CallManager Administration program, then continue with the following procedure, ["To specify MWI and voice mail extensions in CallManager version 3.05"](#) on page 33

## To specify MWI and voice mail extensions in CallManager version 3.05

- 1 In the CallManager Administration program, select **Service > Service Parameters**.
- 2 In the list of servers on the left side of the Service Parameters Configuration page, click the server that CallManager is installed on.
- 3 In the **Configured Services** list, click **Cisco CallManager**.
- 4 In the **Configured Services Parameters** list, click one of the four parameters shown in the following table.
- 5 Change or enter a value, as appropriate.
- 6 Click **Update** to save the change.
- 7 Repeat steps 4 through 6 to specify values for the other parameters, as appropriate.
- 8 Shut down and restart the CallManager server.

Field	Value
ForwardMaximumHopCount	The maximum number of times a call can be forwarded. Specify a value that is 6 greater than the number of CallManager ports that are connected to the UNIVERGE UM8500 server. This ensures that a call reaches the last port in the hunt group even if the call is forwarded by UM8500 several times, for example, if the system is a 72-port UM8500 system, specify "78" for <b>ForwardMaximumHopCount</b> .
MessageWaitingOffDN	The extension that turns MWIs off.
MessageWaitingOnDN	The extension that turns MWIs on.
VoiceMail	The extension that users call to access UM8500. This is typically the extension number, the <b>Directory number</b> in the Cisco CallManager Administration program, of the first uOne port. If an extension is specified for <b>VoiceMail</b> , then users can call UM8500 simply by pressing the message waiting indicator button on their Cisco phones.

## To add voice mail ports to CallManager version 3.2 and later

Add one voice mail port to CallManager for each port being connecting to UM8500.

### CAUTION

Voice mail ports and phones must be in the same calling search space, or the integration will not work.

- 1 In the Cisco CallManager Administration program, select **Features > Voice Mail > Cisco Voice Mail Ports**.
- 2 Click **<Add new port>**.
- 3 At the Configuration screen, enter values as shown in the table below.

Field	Value
Port name	<p>A name for the voice mail port, for example, "UM8500-1." Follow these instructions:</p> <ul style="list-style-type: none"><li>• In general, use the same prefix for every port, for example, "UM8500-." However, if CallManager is sending calls to more than one UNIVERGE UM8500 server, use a different prefix for the CallManager ports that are being connected to each UNIVERGE UM8500 server, for example, "UM85001-" and "UM85002-."</li><li>• Use prefixes that are 12 characters or less.</li><li>• Number the ports beginning with 1 and continuing in sequence.</li><li>• Do not begin port numbers with 0. For example, "UM8500-1" is a valid value; "UM8500-0" is not.</li></ul> <p><b>CAUTION!</b> If a uOne port is given a device name that does not conform to these conventions, UM8500 can not receive calls from that port.</p>
Description	This field is automatically filled in with the name typed in the <b>Device name</b> field. These characters can be deleted and a new description can be typed.
Device pool	Click <b>Default</b> .
Location	Accept the default value of <b>None</b> .
Directory number	The extension that will be connected to UM8500.
Forward all	<p>This field should be left blank.</p> <p><b>CAUTION!</b> Do not set a value for this field. If information appears in this field, UM8500 might operate improperly.</p>
Forward busy	<p>The extension of the next voice mail port in sequence. If this extension is the last voice mail port, then type the extension of the first voice mail port. Alternatively, the last voice mail port can be forwarded to the operator's extension.</p> <p>If the directory number for this voice mail port is busy, calls are forwarded to the extension shown in this field.</p>
Forward no answer	<p>The extension of the next voice mail port in sequence. If this extension is the last voice mail port, then type the extension of the first voice mail port. Alternatively, the last voice mail port can be forwarded to the operator's extension.</p> <p>If the directory number for this voice mail port is not answered, calls are forwarded to the extension shown in this field.</p> <p>Forward no answer is set in the event the port is disabled or out of service.</p>

- 4 Click **Insert** to save the changes.
- 5 Repeat steps 2 through 4 to specify values for each additional port.
- 6 Close the CallManager Administration program, then continue with the following procedure, "[To specify MWI extensions in CallManager version 3.2 and later.](#)"

## To specify MWI extensions in CallManager version 3.2 and later

- 1 In the CallManager Administration program, select **Feature > Voice Mail > Message Waiting**.
- 2 Click **<Add a New Directory Number>**.
- 3 In the Directory Number field, type the extension that turns MWIs on, select **On**, then click **Insert**.
- 4 In the Directory Number field, type the extension that turns MWIs off, select **Off**, then click **Insert**.
- 5 Shut down and restart the CallManager server.

## Installing and configuring the TAPI service provider

Perform the following procedures to install and configure the TAPI service provider.

If upgrading from Cisco CallManager version 2.4, the old TAPI server provider must be removed before the new one is installed. See [“Upgrading from Cisco 2.4” on page 42](#).

### To install the TAPI service provider

#### NOTE

UM8500 must be installed before the TAPI service provider and wave driver are installed.

- 1 Obtain a copy of the TAPI service provider software from a Cisco reseller.
- 2 On the messaging system server, shut down UM8500.
- 3 Run the TAPI service provider setup program.
- 4 Follow the on-screen instructions.
- 5 When prompted, restart the server.

Continue with the next procedure.

## To configure the TAPI service provider

- 1 Log on to Windows. The Cisco Unity-CM TSP dialog appears.

### NOTE

The Cisco Unity-CM TSP dialog box appears automatically the first time you log on after installing the TAPI server provider. To change the settings later, perform steps 2–6 of the following procedure, "[To test the TAPI service provider](#)" on page 38.

- 2 Click **Add** and the Add CallManager IP Address dialog box appears.
- 3 Type the IP address of the Cisco CallManager server that is connected to UM8500, then click **OK**.
- 4 In the Cisco Unity-CM TSP Settings dialog box, enter the values shown in the following table.

Field	Value
Primary CallManager IP address	The IP address of the Cisco CallManager server from which UM8500 receives calls.
Number of voice ports	The number of Cisco CallManager uOne or voice mail ports that are connected to UM8500.
Device name prefix	The prefix used for the <b>Device name</b> when uOne or voice mail ports were created in the Cisco CallManager Administration program. See " <a href="#">To add uOne ports to CallManager version 3.05</a> " on page 32 or " <a href="#">To add voice mail ports to CallManager version 3.2 and later</a> " on page 34.
MessageWaitingOnDN	The extension specified, in the Cisco CallManager Administration program, for turning MWIs on. See " <a href="#">To specify MWI and voice mail extensions in CallManager version 3.05</a> " on page 33 or " <a href="#">To specify MWI extensions in CallManager version 3.2 and later</a> " on page 35.
MessageWaitingOffDN	The extension specified, in the Cisco CallManager Administration program, for turning MWIs off. See " <a href="#">To specify MWI and voice mail extensions in CallManager version 3.05</a> " on page 33 or " <a href="#">To specify MWI extensions in CallManager version 3.2 and later</a> " on page 35.

- 5 Click **OK** to close the Cisco Unity-CM TSP Settings dialog box.
- 6 Continue with the next procedure.

## To test the TAPI service provider

- 1 If the Cisco Unity-CM TSP dialog box is already displayed, skip to step 7. Otherwise, continue with step 2.
- 2 On the messaging system server, log on to Windows as an administrator.
- 3 On the Windows taskbar, click **Start > Control Panel**.
- 4 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 5 Click the **Advanced** tab.
- 6 Click **Cisco Unity-CM TSP**, and click **Configure**. The Cisco Unity-CM TSP dialog box appears.
- 7 Click **Test**, and the settings specified in step 4 of the procedure “[To configure the TAPI service provider](#)” on page 37 are checked against the current settings in Cisco CallManager Administrator.

If the test succeeds, a message box displays the message “Test completed successfully.” If the test fails, one of the error messages shown in the following table appears. Troubleshoot the problems as described in the “Comments” column, then repeat this step until the test is successful. Continue with step 8.

Error message	Comments
Pinging CallManager server <IP address> failed. Make sure the IP address is valid, the server is running, and the network connection is working.	No computers on the network have the IP address that specified in “Primary CallManager IP address.” Confirm that this address is valid. If the value is correct, or if the problem persists after the value is changed, troubleshoot the problem as a network connectivity problem.
The voice device named <device name> does not respond to registration requests. Ensure that the device is created in the CallManager database and that the device name prefix is correct.	Confirm that the values in <b>CallManager Device List</b> , see step 4 of the procedure “ <a href="#">To configure the TAPI service provider</a> ” on page 37, matches the names of the uOne or voice mail ports created, see “ <a href="#">To add uOne ports to CallManager version 3.05</a> ” on page 32 or “ <a href="#">To add voice mail ports to CallManager version 3.2 and later</a> ” on page 34. If not, change the <b>Device name prefix</b> of the names of the ports, as necessary.
Could not connect to the CallManager. Verify that all Cisco services are started on the CallManager server.	The IP address specified in <b>Primary CallManager IP address</b> is a valid address, but CallManager services are not running on that computer, possibly because CallManager is not installed on the server with that IP address. Confirm that this address is correct and that the CallManager services are running.

- 8 Click **OK** to close the Cisco Unity-CM TSP dialog box. The following message appears:  

This computer needs to be rebooted to update the wave driver.
- 9 Click **OK**.
- 10 click **Close** to close the Phone and Modem Options dialog box.
- 11 Shut down and restart the messaging system server.



# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Cisco
Model	CallManager
Switch PBX software version	3.05 or later
Integration	TAPI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Changing the TAPI service provider settings

To change the values that were specified when the TAPI service provider was installed and configured, perform the following procedure.

## To change and test TAPI service provider settings

- 1 On the messaging system server, log on to Windows as an administrator.
- 2 On the Windows taskbar, click **Start > Control Panel**.
- 3 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 4 Click the **Advanced** tab.
- 5 Click **Cisco Unity-CM TSP**, then click **Configure**. The Cisco Unity-CM TSP dialog box appears.
- 6 In the **Select CallManager** list, click the IP address of the CallManager server that is connected to UM8500, then click **Settings**.  
  
If the **Select CallManager** list does not contain the desired IP address, click **Add**, type the IP address, then click **OK**.
- 7 In the Cisco Unity-CM TSP Settings dialog box, enter the values shown in the following table.

Field	Value
Primary CallManager IP address	The IP address of the Cisco CallManager server that UM8500 will usually receive calls from.
Number of voice ports	The number of Cisco CallManager uOne ports or voice mail ports that are connected to UM8500.
Device name prefix	The prefix used for <b>Device name</b> when the uOne ports or voice mail ports were created in the Cisco CallManager Administration program. See <a href="#">"To add uOne ports to CallManager version 3.05"</a> on page 32 or <a href="#">"To add voice mail ports to CallManager version 3.2 and later"</a> on page 34.
MessageWaitingOnDN	The extension specified, in the Cisco CallManager Administration program, for turning MWIs on. See <a href="#">"To specify MWI and voice mail extensions in CallManager version 3.05"</a> on page 33 or <a href="#">"To specify MWI extensions in CallManager version 3.2 and later"</a> on page 35.
MessageWaitingOffDN	The extension specified, in the Cisco CallManager Administration program, for turning MWIs off. See <a href="#">"To specify MWI and voice mail extensions in CallManager version 3.05"</a> on page 33 or <a href="#">"To specify MWI extensions in CallManager version 3.2 and later"</a> on page 35.

- 8 Click **OK**.
- 9 In the Cisco Unity-CM TSP dialog box, click **Test**. The settings specified in step 7 are checked against the current settings in Cisco CallManager Administrator.  
  
If the test succeeds, a message box displays the message "Test completed successfully." If the test fails, one of the error messages shown in the following table appears. Troubleshoot the problems as described in the "Comments" column, then repeat this step until the test succeeds. Continue with step 10.

Error message	Comments
Pinging CallManager server <IP address> failed. Make sure the IP address is valid, the server is running, and the network connection is working.	No computers on the network have the IP address that specified in "Primary CallManager IP address." Confirm that this address is valid. If the value is correct, or if the problem persists after the value is changed, troubleshoot the problem as a network connectivity problem.

Error message	Comments
The voice device named <device name> does not respond to registration requests. Ensure that the device has been created in the CallManager database and that the device name prefix is correct.	Confirm that the values in <b>CallManager Device List</b> , see step 4 of the procedure <a href="#">“To configure the TAPI service provider”</a> on page 37 to match the names of the uOne ports created, see <a href="#">“To add uOne ports to CallManager version 3.05”</a> on page 32. If not, change the “Device name prefix” of the names of the uOne ports, as necessary.
Could not connect to the CallManager. Verify that all Cisco services are started on the CallManager server.	The IP address specified in <b>Primary CallManager IP address</b> is a valid address, but CallManager services are not running on that computer, possibly because CallManager is not installed on the server with that IP address. Confirm that this address is correct and that the CallManager services are running.

**10** Click **OK** to close the Cisco Unity-CM TSP dialog box. The following message appears:

“This computer needs to be rebooted to update the wave driver.”

**11** Click **OK**.

**12** Click **Close** to close the Phone and Modem Options dialog box.

**13** Shut down and restart the messaging system server.

## Upgrading from Cisco 2.4

Before installing the Cisco Unity-CM TAPI Service Provider on the messaging system server, remove the CallManager 2.4 TAPI service provider.

### To remove the CallManager version 2.4 TAPI service provider

- 1 On the messaging system server, log on to Windows as an administrator.
- 2 On the Windows taskbar, click **Start > Control Panel**.
- 3 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 4 Click the **Advanced** tab.
- 5 Click **Cisco IP PBX Service Provider**, then click **Remove**.
- 6 Click **Yes** to remove the selected telephony driver.
- 7 Click **Close** to close the Phone and Modem Options dialog box.

## Changing the number of uOne ports

To change the number of uOne ports after the CallManager is installed and set up, perform the following procedures.

### To change the number of uOne ports in CallManager

- 1 On the CallManager server, use the Cisco CallManager Administration program to add or remove uOne lines, as appropriate.

For information on adding uOne ports, see [“To add uOne ports to CallManager version 3.05”](#) on page 32. For information on removing uOne ports, see the Cisco CallManager Administration online Help.

- 2 Shut down and restart the CallManager server.
- 3 Continue with the next procedure.

### To change the number of uOne ports for the Cisco Unity-CM TAPI Service Provider

- 1 On the messaging system server, log on to Windows as an administrator.
- 2 On the Windows taskbar click **Start > Control Panel**.
- 3 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 4 Click the **Advanced** tab.
- 5 Click **Cisco Unity-CM TSP**, then click **Configure**. The Cisco Unity-CM TSP dialog box appears.
- 6 Select the IP address of the CallManager server on which uOne ports were added.
- 7 Click **Settings**. The Cisco Unity-CM TSP Settings dialog box appears.
- 8 Change the **Number of voice ports** to the number of uOne ports currently configured in the Cisco CallManager Administration program.
- 9 Click **OK** to close the Cisco Unity-CM TSP Settings dialog box.
- 10 Click **Close** to close the Phone and Modem Options dialog box.
- 11 Shut down and restart the messaging system server.

## Converting from analog lines to IP lines

To convert an existing UM8500 system from analog lines to IP lines, it is necessary to upgrade the system key to enable the integration. Contact a sales representative for the necessary key upgrade. To confirm that the integration is enabled, perform the procedure “[To confirm that the integration is enabled](#)” on page 39.

After upgrading the system key, perform all the procedures under “[Installing and configuring the TAPI service provider](#)” on page 36. Then remove the software for the voice boards that are installed in the messaging system server:

- Follow the procedure in the *Installation Guide* to remove software for the Dialogic voice board installed in the messaging system server.

# Troubleshooting

If one of the problems listed below is encountered, try the corrective actions listed. If these actions do not correct the problem or if the problem is not described here, contact Technical Support.

## Message waiting indicators are not working properly

### To confirm that the message waiting indicator settings are correct

- 1 At a phone at which the message waiting indicator is off, dial the extension that turns message waiting indicators on. The indicator on the phone should turn on. If it does not, the problem is with the CallManager settings.
- 2 At a phone at which the message waiting indicator is on, dial the extension that turns message waiting indicators off. The indicator on the phone should turn off. If it does not, check the CallManager settings.
- 3 Confirm that the ports specified for turning message waiting indicators on and off in CallManager are the same as the ports specified in the Cisco Unity-CM TAPI service provider.
  - For information on specifying values in CallManager, see [“To specify MWI and voice mail extensions in CallManager version 3.05” on page 33](#), or [“To specify MWI extensions in CallManager version 3.2 and later” on page 35](#). The parameters that control message waiting indicators are `MessageWaitingOnDn` and `MessageWaitingOffDN`.
  - For information on specifying values in Cisco Unity-CM TSP, see [“To configure the TAPI service provider” on page 37](#).
- 4 Stop and start the Cisco CallManager service.
- 5 Shut down and restart the messaging system server.
- 6 If the problem persists, contact Technical Support.

## UNIVERGE UM8500 does not start after software is installed and integration is configured

In some cases, UM8500 does not start after the Cisco Unity-CM TAPI service provider is installed and all necessary configuration steps performed. If this happens, perform the following procedure.

### To start UNIVERGE UM8500 after installing and configuring the integration

- 1 Test the TAPI service provider. See [“To change and test TAPI service provider settings” on page 40](#).
- 2 Shut down and restart the messaging system server.
- 3 If the problem persists, contact Technical Support.

## The default earpiece and speaker volume on Cisco 7960 phones is too loud

### To change the volume on Cisco 7960 phones

- 1 On the 7960 phone, press **Speaker**.
- 2 Press **Volume** to change the volume.
- 3 Press **Settings**.
- 4 Press the **Save** soft key.

# Integrating with CallManager and traditional phone systems

UM8500 can be integrated with both a traditional, circuit-switched phone system and CallManager at the same time. Any traditional phone system that UM8500 integrates with can be used in a dual-switch integration.

However, only Internet Protocol (IP) phone systems such as Cisco CallManager, which provides UM8500 with call information directly from the TAPI service provider, will work as the IP phone system in a dual-switch integration. In a dual-switch integration, UM8500 does not support IP phone systems that send call information by using serial packets.

All extensions for subscribers and call handlers must be unique regardless of which phone system a subscriber, or call handler, uses. To transfer calls from one phone system to another, UM8500 must dial the same access codes that a subscriber dials when calling someone on the other phone system.

## Requirements

- A UNIVERGE UM8500 system key with the integration type set to “Multiple integrations,” with the appropriate number of voice messaging ports enabled.
- The messaging system server set up and UM8500 installed as described in the *Installation Guide*.

### NOTE

When prompted to select the phone system, select the traditional phone system that UM8500 will integrate with, not Cisco CallManager.

- A traditional phone system installed and integrated with UM8500.  
See the *Installation Guide* and this guide for details. The traditional phone system, including the voice board software used in the integration, must be installed and integrated with UM8500 before Cisco CallManager is integrated.
- Cisco CallManager and the appropriate Telephony Service Provider (TSP) installed and configured.  
See “[Integration overview](#)” on page 26 for information about integrating UM8500 with CallManager.

## Setting up UNIVERGE UM8500 Administrator

After UM8500 is installed and each of the phone systems have been integrated, adjust settings in the UM8500 Administrator to enable UM8500 to work with both phone systems. See “Dual-switch integration settings,” on page 63, for information on UNIVERGE UM8500 Administrator settings related to dual-switch integrations.

Follow these steps to set up the dual-switch integration.

- 1 **Specify settings for the traditional phone system on the Switch page.**  
See “[To specify phone system settings for the traditional phone system](#)” on page 47.

### CAUTION

Specify settings for the traditional phone system before specifying settings for the IP phone system. You must proceed in this order or the integration might not work.

- 2 **Specify settings for Cisco CallManager on the IP Switch page.**  
See “[To specify phone system settings for Cisco CallManager](#)” on page 47.
- 3 **Assign port ranges to each phone system, then modify the settings for the ports assigned to each phone system.**  
See “[To modify voice port settings](#)” on page 48.



- 4 **Select the phone system that subscribers and call handlers use.**

See [“To select which phone system subscribers and call handlers use” on page 48.](#)

- 5 **Select the phone system that UM8500 uses when dialing out to send message notifications.**

See [“To select which phone system UNIVERGE UM8500 uses for message notification and MWI” on page 49.](#)

#### CAUTION

If you need to add or remove voice boards or uninstall the voice board software after the dual-switch integration is set up, you must also remove the Cisco TAPI service provider. Do not reinstall the Cisco TAPI service provider until after the voice boards have been set up or the voice board software is reinstalled. See [“Changing the number of uOne ports” on page 43](#), for more information.

### To specify phone system settings for the traditional phone system

- 1 Go to **System > Switch > Switch**. The settings for the traditional phone system selected during the UM8500 setup program are displayed.
- 2 In the **Access Code** field, type the trunk access code that UM8500 must dial to transfer calls to Cisco CallManager from the traditional phone system.
- 3 Adjust other settings as appropriate. See the *System Management Help* for more information about the other settings on the Switch page.
- 4 Click **Save**, then click **OK** in the Warning dialog box.

### To specify phone system settings for Cisco CallManager

- 1 Go to **System > Switch > IP Switch**.
- 2 In the **Set Active Switch Type** section, enter values as shown in the following table:

#### Phone system settings

Parameter	Required setting
Manufacturer	Cisco
Model	CallManager
Switch PBX software version	3.0.5 or later
Integration	Multiple

- 3 Click **Set As Active**, then click **OK** in the Warning dialog box.
- 4 In the **Access Code** field, type the trunk access code that UM8500 must dial to transfer calls to the traditional phone system from CallManager.
- 5 Specify the settings in **Resynch All Message Waiting Indicators** section as needed. See the *System Management Help*.
- 6 Click **Save**, then click **OK** in the Warning dialog box.

## To modify voice port settings

- 1 Go to **System > Ports**.
- 2 In the **Port Assignments** section, indicate the range of ports to be assigned to each phone system. The port range for the traditional phone system is port 1 through  $x$ , where  $x$  is the number of ports on the installed voice board. The port range for CallManager is  $x + 1$  through  $y$ , where  $y$  is the number of TAPI ports installed on the server or the number of licensed voice ports on the system key, whichever is lower.
- 3 Type an extension for each port.
- 4 Specify other settings as appropriate. For each phone system, verify that an appropriate number of ports are used to answer calls and to dial out for message waiting indicators (MWIs), message notifications, and Media Master recordings by phone.
- 5 Click **Save**.

### CAUTION

The port range for each phone system must be set as specified in step 2 above. If there is a port range mismatch, UM8500 is unable to answer incoming calls and dial out.

## To select which phone system subscribers and call handlers use

For existing subscriber templates, subscriber accounts, and call handlers, UM8500 defaults to the traditional phone system. During the initial setup of the dual-switch integration, you will modify only those pages that will use CallManager. Note that changes made to subscriber templates do not affect existing subscribers.

- 1 As appropriate, go to:  
**Subscribers > Subscriber Template > Profile**  
**Subscribers > Subscribers > Profile**  
**Call Management > Call Handlers > Profile**
- 2 In the **Switch** list, select the phone system.
- 3 Adjust other settings as appropriate. See the *System Management Help* for more information.

### CAUTION

If the **Switch** setting on the subscriber's or call handler's Profile page does not match the phone system actually used by a subscriber or call handler, UM8500 is not able to transfer calls to or from the subscriber or call handler. Additionally, UM8500 is unable to turn the subscriber's MWIs on or off and unable to reach the subscriber's extension for Media Master recording by phone.

## To select which phone system UNIVERGE UM8500 uses for message notification and MWI

If subscribers use message notification, you can select which phone system UM8500 uses to dial out when notifying subscribers of new messages. Note that the changes made to subscriber templates do not affect existing subscribers. Subscribers with access to the UM8500 Assistant can also change the phone system used for their message notification.

1 As appropriate, go to:

**Subscribers > Subscriber Template > Devices**

**Subscribers > Subscribers > Devices**

**Subscribers > Subscriber Template > MWI**

**Subscribers > Subscribers > MWI**

2 For each device in the **Switch** list, select the phone system that UM8500 uses to dial out when notifying subscribers of new messages.

3 Adjust other settings as appropriate. See the *System Management Help* for more information.

### CAUTION

The selected phone system must have at least one port set to dial out for message notifications on the **System > Ports** page. If the selected phone system does not have any ports set for this function, notifications will fail.

### Dual-switch integration settings

Page	Field	Description
<b>System &gt; Switch &gt; Switch</b>	Access code	Type the access code that UM8500 uses when transferring calls to the IP phone system from the traditional phone system. This is the same number that subscribers on the traditional phone system dial to reach someone on the IP phone system.
<b>System &gt; Ports</b>	Port assignments	Type the range of ports that each phone system uses. The number of ports available for use by the traditional phone system is determined by the number of ports on the installed voice boards. The number of ports available to CallManager is the difference between the number of licensed voice ports on the system key and the number of ports assigned to the traditional phone system. Never assign more ports to the traditional phone system than the number of ports on the voice boards.  The range of ports for the phone systems cannot overlap and must be contiguous, which creates a lower and an upper range. Assign the lower range to the traditional phone system (port 1 through $x$ , where $x$ is the number of ports on the installed voice boards), and assign the upper range to CallManager (port $x + 1$ through $y$ , where $y$ is the number of TAPI ports installed on the server or the number of licensed voice ports on the system key, whichever is lower).
<b>Subscribers &gt; Subscriber Template &gt; Profile</b>	Switch	Select the phone system that the subscribers based on this template will use for their work phones. If this setting is incorrect, UM8500 will not be able to: <ul style="list-style-type: none"> <li>• Transfer calls to or from the subscriber.</li> <li>• Dial the subscriber's extension for Media Master recording by phone.</li> </ul>
<b>Subscribers &gt; Subscriber Template &gt; Devices</b>	Switch	Select the phone system that UM8500 dials out on when notifying the subscriber of new messages. Each notification device can be associated with a specific phone system, except for text pagers. UM8500 defaults to the phone system specified on the subscriber template Profile page. On the <b>System &gt; Ports</b> page, the selected phone system must have at least one port set to dial out for message notification.

## Dual-switch integration settings

Page	Field	Description
<b>Subscribers &gt; Subscribers &gt; Profile</b>	Switch	<p>Select the phone system that the subscriber uses as a work phone. If this setting is incorrect, UM8500 will not be able to:</p> <ul style="list-style-type: none"> <li>• Transfer calls to or from the subscriber.</li> <li>• Dial the subscriber's extension for Media Master recording by phone.</li> </ul> <p>On the <b>System &gt; Ports</b> page, the selected phone system must have an appropriate number of ports set to answer calls and to dial out for MWIs and Media Master recording by phone.</p>
<b>Call Handlers &gt; Profile</b>	Switch	<p>Select the phone system that the call handler uses. If this setting is incorrect, UM8500 can not transfer calls to or from the call handler.</p>
<b>Subscribers &gt; Subscriber Template &gt; MWI</b>	Switch	<p>Select the phone system the subscriber's MWI extension belongs to. If this setting is incorrect, UM8500 will not be able to turn MWIs on or off. On the <b>System &gt; Ports</b> page, the selected phone system must have at least one port set to dial out for MWIs.</p>
<b>Subscribers &gt; Subscribers &gt; MWI</b>	Switch	<p>Select the phone system the subscriber's MWI extension belongs to. If this setting is incorrect, UM8500 will not be able to turn MWIs on or off. On the <b>System &gt; Ports</b> page, the selected phone system must have at least one port set to dial out for MWIs.</p>

## Changing the number of installed ports

After the dual-switch integration is set up, follow these steps to add or remove voice boards or uninstall voice board software, follow these steps:

- 1 Remove the Cisco TAPI service provider.**  
See [“To remove the TAPI service provider”](#) below.
- 2 As appropriate, remove or add voice boards, or uninstall and reinstall the voice board software.**  
See the *System Management Help* for information about removing Dialogic or NMS voice board software.
- 3 Reinstall the TAPI service provider after setting up the voice boards or reinstalling the voice board software.**  
See [“To reinstall the TAPI service provider”](#) on page 50.
- 4 Adjust the port assignments on the System > Ports page.**  
If the traditional phone system is completely removed, the port assignments for CallManager on the **System > Ports** page must be adjusted, after the voice boards and voice board software used in the integration with the traditional phone system are removed.

### To remove the TAPI service provider

- 1 On the messaging system server, log on to Windows as an administrator.
- 2 On the Windows taskbar, click **Start > Control Panel**.
- 3 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 4 Click the **Advanced** tab.
- 5 Depending on which TAPI service provider is installed, click either **Cisco Unity-CM TSP** or **Cisco IP PBX Service Provider**, then click **Remove**.
- 6 Click **Yes** to remove the selected telephony driver.
- 7 Click **Close** to close the Phone and Modem Options dialog box.

### To reinstall the TAPI service provider

- 1 On the messaging system server, log on to Windows as an administrator.

- 2 On the Windows taskbar, click **Start > Control Panel**.
- 3 Double-click **Phone and Modem Options**. The Phone and Modem Options dialog box appears.
- 4 Click the **Advanced** tab.
- 5 Click **Add**. The Add Driver dialog box appears.
- 6 Click either **Cisco Unity-CM TSP** or **Cisco IP PBX Service Provider**, then click **Add**.
- 7 Click **OK** to close the Cisco Unity-CM TSP dialog box.
- 8 Click **Close** to close the Phone and Modem Options dialog box.



# ■ Fujitsu 9600/SMDI

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 56.
- 3 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 57.
- 4 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, “[Testing the extensions](#)” on page 338.
- 5 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, “[Learning phone system tones](#)” on page 340.

## Requirements

The steps to set up the Fujitsu Simplified Message Desk Interface (SMDI) integration require the following:

### Phone system

- Fujitsu 9600 with an SMDI port installed.
- The phone system SMDI port must be connected to a serial port, COM1 is the default, on the messaging system server with an RS-232 serial cable.
- The phone system voice messaging ports must be connected to the voice boards in the messaging system server.
- The phone system ready for the integration as described in the phone system installation guide.

### UNIVERGE UM8500 server

- The Dialogic analog voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sales representative.

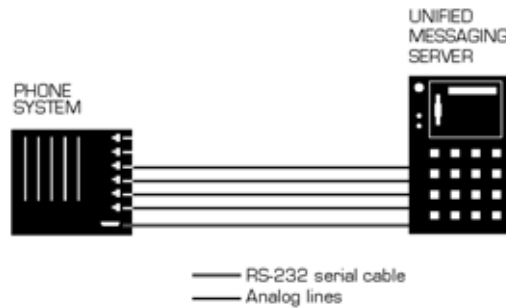
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- An available serial port, COM1 is the default.



# Integration description

## How the integration works

The Fujitsu 9600/SMDI integration uses a data link, which consists of an RS-232 serial cable connecting the phone system and the messaging system server. The phone system voice messaging lines connect to the analog voice boards in the messaging system server. The following illustration shows the required connections.



### NOTE

Serial cables longer than 50 feet require a modem.

The phone system sends the following information through the data link:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

## Integration features

The Fujitsu 9600/SMDI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Fujitsu
Model	9600
Switch software version	All
Integration	Serial

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Programming the phone system

If you use programming options other than those described in the following procedure, the integration's performance may be affected.

## To program the phone system

- 1 Assign a DCC port for integration with UNIVERGE UM8500.
- 2 On the phone system, in **Assign single line phone**, set Type to **1** for the Fujitsu 9600 phone lines used as voice messaging ports.
- 3 In **Change service parameter**, set Type to **2** and ID:01 to **01** for the Fujitsu 9600 phone lines used as voice messaging ports.

### NOTE

The settings in step 3 disable the immediate ring feature.



# ■ Mitel SX200, SX2000, 3300ICP, and 200ICP

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## In this integration...

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#)” below.
- 2 Set up UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 62.
- 3 Connect the systems.**  
See “[Connecting the systems](#)” on page 63.
- 4 Set up the phone system for the integration.**  
See “[Programming the phone system](#)” on page 65.
- 5 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, “[Testing the extensions](#)” on page 338.
- 6 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, “[Learning phone system tones](#)” on page 340.

## Requirements

Before setting up the Mitel with D82 integration, confirm that the site meets the following requirements and that all of the necessary components are available:

### Phone system

- One of the following Mitel phone systems:

Phone system	Software version
SX-200 ML	Superset 420, 430
SX-2000	Superset 430

- For each voice messaging port, one Digital Network Interface Circuit (DNIC) port, which emulates a Superset 430 digital phone, installed and set up as a voice messaging port.
- The phone system ready for the integration as described in the phone system manufacturer's documentation.
- A type 66 interconnect block for each PBX station interface cable.
- The phone system voice messaging ports must be connected to the D/82 voice boards installed in the messaging system server with a PBX station interface cable for each group of eight voice messaging ports.

### UNIVERGE UM8500 server

- The Dialogic D82 voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sale representative.

- A PBX station interface cable for each voice board.
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

The integration uses digital lines to connect the phone system and the messaging system server. Each D82 voice board in the messaging system connects to the phone system through a PBX station interface cable. A D82 voice board emulates up to eight Mitel Superset digital phones.

### Integration features

The integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Mitel
Model	SX-200D ML/EL
Switch software version	All with digital 430 emulation
Integration	Direct Digital

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

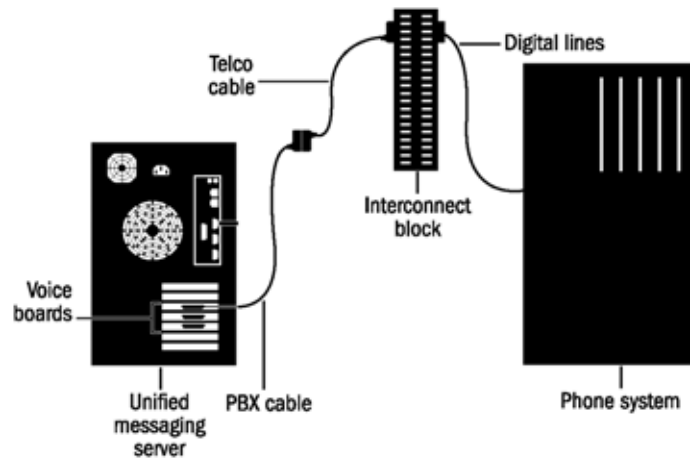


## Connecting the systems

After installing all of the required hardware on the voice messaging system, perform the following procedure to connect the phone system to the messaging system.

To install required messaging system hardware, such as D82 boards, see the *Installation Guide*.

### System connections



## To connect the phone system and

- 1 Connect the phone system digital lines 1-8 (or 1-4 on a 4-port system) to a type 66 interconnect block. See the following “D82 two-wire pinouts” table for cabling requirements.
- 2 Connect an 18-pair PBX station interface cable to an Amphenol connection on the type 66 interconnect block.
- 3 Connect the other end of the PBX station interface cable to a telco cable.
- 4 Connect the other end of the telco cable to a D82 board installed in the messaging system server.
- 5 Repeat steps 1 through 4 for each additional D82 board installed.

### D82 Two-wire pinouts

Phone line number	Type 66 Block pair	Pin number	Pair color	Lead designation
1	2	27 2	white-orange orange-white	T1 R1
2	4	29 4	white-brown brown-white	T2 R2
3	6	31 6	red-blue blue-red	T3 R3
4	8	33 8	red-green green-red	T4 R4
5	10	35 10	red-slate slate-red	T5 R5
6	12	37 12	black-orange orange-black	T6 R6
7	14	39 14	black-brown brown-black	T7 R7
8	16	41 16	yellow-blue blue-yellow	T8 R8

Programming  
the phone  
system

After confirming that the integration is enabled, perform the procedures for the appropriate phone system model:

- For the Mitel SX-200 ML, see the procedures below.
- For the Mitel SX-2000, see procedures on page 66.

Mitel SX-200 ML

Perform the following to set up the voice messaging extensions and the hunt group for the Mitel SX-200 ML integration.

To set up the voice messaging extensions on the Mitel SX-200 ML

- 1 On the phone system Main menu, select option 9, Station/Supersets.
- 2 Type 4 30 in each voice messaging extension TYP field.

BAY	SLT	CCT	TEN	EXTN	COS	COR	TYP	ANNOUNCE	NAME	ASSOC	COMMENTS
2	03	01	1	410	6	1	430				
2	03	01	1	411	6	1	430				

- 3 Select a voice messaging extension field, then press **ESC + 3** to change the screen to expanded settings for the extension.
- 4 Set the first key type to **Prime**, and set the rest of the key types to **Speed Dial**.
- 5 Repeat steps 3 through 4 for each voice messaging extension.

KEY	TYPE	DIR	RING	SEC	DSS	EXT NUM	TRK NUM	LABEL
01	Prime	In/Out	Immed	No		410		
02	Speed Dial							
03	Speed Dial							
04	Speed Dial							
05	Speed Dial							
06	Speed Dial							
07	Speed Dial							
08	Speed Dial							
09	Speed Dial							
10	Speed Dial							
11	Speed Dial							
12	Speed Dial							
02	Speed Dial							

To set up the hunt group on the Mitel SX-200 ML

- 1 On the phone system Main menu, select option 17, Hunt Groups.
- 2 Create a hunt group with a pilot number, which is the published voice messaging number for all direct and forwarded calls. Include all of the voice messaging extensions in the hunt group.

[GRP 2:500 ]	[TERM]	[STN/SET ]	EXT NUM	BAY	SLT	CCT	COMMENTS
			410	02	03	01	
			411	02	03	02	
			410	02	03	01	

## To enable the Last Party Clear Dial Tone

- On the phone system, enable the Last Party Clear Dial Tone option. Otherwise, the voice messaging system detection is delayed when internal calls are disconnected.

## Mitel SX-2000

Perform the following to set up the voice messaging extensions, to assign key numbers, and to set up the hunt group for the Mitel SX-2000 integration.

### To set up the voice messaging extensions on the Mitel SX-2000

- 1 From the Main menu on the phone system console, select **System forms**.
- 2 On the Systems Forms screen, select **DNI circuit assignment**.
- 3 On the DNI Circuit Assignment screen, set the **Device type channel #1** field to **Superset 430** for each voice messaging extension.

DNI CIRCUIT ASSIGNMENT						
Cabinet	Shelf	Slot	Circuit	Card Type	Channel #1	Channel #2
2	1	7	4	DNI Line	Superset 430	

### To assign key numbers on the Mitel SX-2000

- 1 From the Main menu on the phone system console, select **Multiline set forms**.
- 2 On the Multiline Set Forms screen, select **Multiline key set assignment**.
- 3 On the Multiline Key Set Assignment screen, type a voice messaging extension in the **Prime directory number** field.
- 4 Set the **Key numbers** field for the extension to **Not assigned**.

MULTILINE KEY SET ASSIGNMENT			
Prime Directory Number :	410	Prime Line Type :	single line
Prime Ring Type :	ring	Cab,Shlf,Slot,Circ :	4 1 1 1
Prime Name :			
Key Number	Directory Number	Line Type	Ring Type
2		not assigned	
3		not assigned	
4		not assigned	
5		not assigned	
6		not assigned	
7		not assigned	
8		not assigned	
9		not assigned	
10		not assigned	
11		not assigned	

- 5 Repeat steps 3 through 4 for each voice messaging system port extension number.

### To set up the hunt group on the Mitel SX-2000

- 1 From the Main Menu on the phone system console, select **Group forms**.
- 2 On the Group Forms screen, select **Hunt group assignment**.
- 3 On the Hunt Group Assignment screen, in the **Pilot number** field, type the published voice messaging number for all direct and forwarded calls, then press **ESC + 1**.

- 4 Type a group name, such as **D / 82 Hunt**, in the **Name** field,
- 5 In the **Hunt mode** field, type **c i r c u l a r**.
- 6 In a **Directory number** field, type a voice messaging extension.
- 7 In the **Directory Name** fields, type a name for the voice messaging extension.

HUNT GROUP ASSIGNMENT		
Pilot Number :	500	Name : VBPC Hunt
Hunt Mode :	Circular	Priority :
Group Type :		1st Threshold (%) :
RAD1 :		2st Threshold (%) :
RAD2 :		Alert Device :
NIGHT RAD :		Phase Timer :

Member	Directory Number	Name
1	410	VBPC Port 1
2	411	VBPC Port 2
3	412	VBPC Port 3
4	413	VBPC Port 4
5	414	VBPC Port 5
6	415	VBPC Port 6
7	416	VBPC Port 7
8	417	VBPC Port 8

- 8 Repeat steps 6 through 7 for each voice messaging extension that must be set up for the integration.

#### Next step...

- ◆ **Test the phone extensions that are set up for the integration.**  
See Appendix B, "[Testing the extensions](#)" on page 338.

# Troubleshooting

If one of these problems listed below is encountered, try the corrective actions listed for the problem. If these actions do not correct the problem, or if the problem is not described here, contact Technical Support.

Problems	Corrective actions
<p>Calls to the voice messaging system do not connect.</p> <p>Calls to the voice messaging system connect, but no prompts play.</p> <p>Callers entering an extension are always answered with the opening greeting instead of the personal greeting.</p> <p>Calls are not integrating with the phone system.</p> <p>Easy message access is not functioning: subscribers access their voice mailboxes and hear the opening greeting instead of personal options.</p> <p>Calls are forwarded to the opening greeting instead of a subscriber's mailbox.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• Confirm that expansion boards are firmly seated in the computer expansion slots and that each board is properly configured. See "Installing or reseating voice boards" in the appendix titled "Adding or changing the voice boards" in the <i>Installation Guide</i>.</li> <li>• See the <i>Installation Guide</i> and check the voice board settings.</li> <li>• Confirm that the PBX station interface cables between the systems are connected and functioning correctly. Try testing each cable or replacing each with a different cable.</li> <li>• Confirm that the correct phone system model is set up on the voice messaging system. On the UM8500 Administrator, go to <b>Switch &gt; Switch</b> Information and check that the correct phone system manufacturer and model type are displayed.</li> </ul>
The voice messaging system takes a long time detecting disconnected calls.	Confirm that the Last Party Clear Dial option is set up on the phone system.
Callers are asked to hold or complain that they are on hold for too long when calling an extension that is using "Do not disturb" mode.	Typically this happens because the voice messaging system is set up to use the await-answer transfer type and call holding for that extension. Call holding must be turned off when using the "Do not disturb" mode on the phone.
The phone system cabinet that contains the voice messaging station cards sporadically resets itself.	The phone system might be overloaded due to an increase in polling traffic between the D82 boards and the system. Spread out the load by distributing the voice messaging extensions among multiple station cards on the phone system. For example, distribute three or fewer voice messaging extensions per station card.
Subscriber's phones are not forwarding calls on ring-no-answer or on busy.	Confirm that the subscriber's phone is set up on the phone system to forward calls to the voice messaging hunt group pilot number on ring-no-answer and on busy.
Subscribers are not being identified by the system, using identified subscriber messaging, when leaving messages for other subscribers.	Confirm that identified subscriber messaging is set up correctly on the voice messaging system.
<p>Subscriber message waiting indication fails.</p> <p>Message waiting indicators are not activated after messages are left.</p> <p>Message waiting indicators are not turned off after messages are retrieved.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• On the UM8500 Administrator, on the Ports page verify that at least one of the voice messaging ports is set for MWI dialout.</li> <li>• On the UM8500 Administrator, confirm that MWI is enabled for the subscriber.</li> </ul>
Await-answer calls release before the personal greeting is played.	See <a href="#">"Learning phone system tones" on page 340</a> .

# ■ Mitel SX-2000 T1

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements**  
Verify that all phone system and messaging system server requirements have been met. See [“Requirements” on page 70](#).
- 2 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration” on page 72](#).
- 3 Program the phone system and extensions.**  
See [“Programming the phone system” on page 73](#).
- 4 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, [“Testing the extensions” on page 338](#).
- 5 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, [“Learning phone system tones” on page 340](#).

## Requirements

The steps to set up the Mitel SX-2000 T1 integration require the following:

### Phone system

- Mitel SX-2000 with release N16 or later installed.
- Mitel Advanced Analog Networking installed.
- The phone system voice messaging ports must be connected to the voice boards in the messaging system server.

#### CAUTION

The T1 lines from the phone system must be functioning and connected to the voice boards before starting UM8500. Failure to do so can cause initialization problems between the messaging system server and the T1 cards in the phone system.

- The phone system ready for the integration as described in the phone system installation guide.

### UNIVERGE UM8500 server

- The Dialogic T1 voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sales representative.

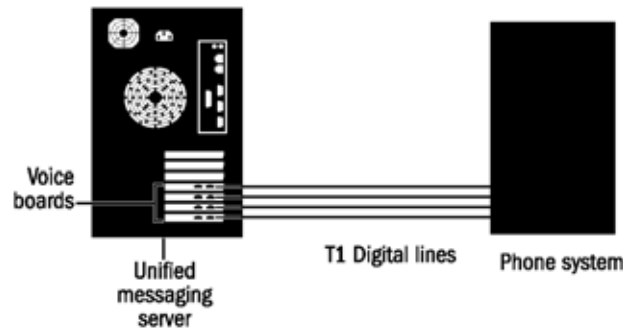
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.



## Integration description

### How the integration works

The Mitel SX-2000 T1 integration uses a T1 line to connect the phone system and the messaging system server. Each T1 line connects 24 voice messaging ports from the phone system DS1 Formatter board to a T1 voice board in the messaging system server. The following illustration shows the required connections.



The phone system sends the following information with forwarded calls:

- The called party's extension
- The calling party's extension, for internal calls, or the calling party's phone number, if it is an external call and the system uses caller ID

The messaging system uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The Mitel SX-2000 T1 integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Mitel
Model	SX-2000
Switch software version	Release N16 or later with T1 ports
Integration	Analog

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Programming the phone system

Perform the following procedures to program the phone system for the integration. Using programming options other than those described in the following procedures can affect system performance.

After connecting the systems, change the default settings for the phone system, as shown in the following procedures. Refer to the phone manufacturer's documentation for more details regarding these steps.

The phone system displays these settings as a series of forms that are available after selecting "Customer data entry" on the console. The following pages show representations of the forms. Change only the settings listed in each form.

## CAUTION

Change the settings for each form in the exact sequence shown in the following steps. Changing the settings for each form out of sequence can result in error messages.

## Steps to change the phone system settings

- 1 Change the settings for the class of service options assignment form.**  
See ["To change the class of service options assignment form" on page 75.](#)
- 2 Change the settings for the link descriptor assignment form.**  
See ["To change the link descriptor assignment form" on page 77.](#)
- 3 Change the settings for the digital E and M trunk circuit descriptor assignment form.**  
See ["To change the digital E and M trunk circuit descriptor assignment form" on page 78.](#)
- 4 Change the settings for the digital link assignment form.**  
See ["To change the digital link assignment form" on page 78.](#)
- 5 Change the settings for the trunk service assignment form.**  
See ["To change the trunk service assignment form" on page 79.](#)
- 6 Change the settings for the trunk assignment form.**  
See ["To change the trunk assignment form" on page 79.](#)
- 7 Change the settings for the trunk group assignment form.**  
See ["To change the trunk group assignment form" on page 80.](#)
- 8 Change the settings for the route assignment form.**  
See ["To change the route assignment form" on page 80.](#)
- 9 Change the settings for the feature access code assignment form.**  
See ["To change the feature access code assignment form" on page 81.](#)
- 10 Change the settings for the call progress tone detection plan assignment form.**  
See ["To change the call progress tone detection plan assignment" on page 81.](#)
- 11 Change the settings for the digit modification assignment form.**  
See ["To change the digit modification assignment form" on page 82.](#)
- 12 Change the settings for the system speed call (speed dialing) assignment form.**  
See ["To change the system speed call \(speed dialing\) assignment form" on page 82.](#)
- 13 Change the settings for the automatic route selection assignment form.**  
See ["To change the automatic route selection assignment form" on page 82.](#)

**14 Change the settings for the call rerouting first alternative assignment form.**

See [“To change the call rerouting first alternative assignment form” on page 83.](#)

## To change the class of service options assignment form

- 1 On the phone system Form Groups menu, select **System forms**, then select **Class of service options assignment**.
- 2 Change only those settings listed in the form below.

CLASS OF SERVICE OPTIONS ASSIGNMENT	
Class of service number : 15	
Option	Select
Auto Answer Allowed	No
Busy Override Security	Yes
Call Forwarding (External Destination)	Yes
Call Hold - Remote Retrieve	No
Call Pickup - Dialed: Accept	No
Call Pickup - Directed: Accept	No
Call Privacy	Yes
Camp-on Tone Security	Yes
Clear All Features - Remote	Yes
Conference Call	No
COV/ONS/E&M Voice Mail Port	Yes
Dialed Night Service	No
Group Call Forward Follow Me - Accept	Yes

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

CLASS OF SERVICE OPTIONS ASSIGNMENT	
Class of service number : 15	
Option	Select
Individual Trunk Access	No
Loudspeaker Pager Override	No
Loudspeaker Pager Override Security	No
Message Waiting - Deactivate On Off-Hook	No
Multiline Set On Hook Dialing	No
Multiline Set Phonebook Allowed	No
Non-Verified Account Code	No
ONS/OPS Internal Ring Cadence for External Callers	Yes
Pager Access - All Zones	No
Public Network Access via DPNSS	Yes
Public Network to Public Network Connection Allowed	Yes
Redial Facilities	No
SMDR - External	Yes
Third Party Call Forward Follow Me - Accept	Yes
Third Party Call Forward Follow Me - Allow	No
Attendant Busy-out Timer (1-1440 mins)	1440
Auto Camp-on Timer (0-30 secs, Blank for Off)	
Busy Tone Timer (10-120 secs)	10
Call Hold Timer (10-660 secs)	120
Camp-on Recall Timer (0-180 secs)	60
Dialing Conflict Timer (2-5 secs)	5
Lockout Timer (10-60 secs)	10

#### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the link descriptor assignment form

- 1 On the phone system Form Groups menu, select **Digital link forms**, then select **Link descriptor assignment**.
- 2 Change only those settings listed in the form below.

LINK DESCRIPTOR ASSIGNMENT	
Digital Link Descriptor Number : 10	
Description	Value
Address for Message Control (A/B)	
BER - Maintenance Limit, 10**-n, n=(3,4,5,6)	4
BER - Service Limit, 10**-n, n=(3,4,5,6)	3
Data Call Alternate Digit Inversion (Yes/No)	Yes
Framing Losses in 24 hrs - Maintenance Limit (0-9000)	255
Framing Losses in 24 hrs - Service Limit (0-9000)	9000
Integrated Digital Access	T1D4
Satellite Link Delay (Yes/No)	No
Slip Rate - Maintenance Limit (0-9000)	255
Slip Rate - Service Limit (0-9000)	7000
DS1 Parameters:	
Alarm Debounce Timer - Service Limit (300-3200)	500
B8ZS Zero Code Suppression - (Yes/No)	No
Italian Parameters:	
Digital Link Fault Delay Timer (0-360 sec)	240

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the digital E and M trunk circuit descriptor assignment form

- 1 On the phone system Form Groups menu, select **Trunk forms**, then select **Digital E and M trunk circuit descriptor assignment**.
- 2 Change only those settings listed in the form below.

DIGITAL E AND M TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT	
Trunk Circuit Descriptor Number: <b>10</b>	
Descriptor	Value
Call Collision Handling (AT&T/Normal)	Normal
AT&T Call Collision Handling (Backoff/NoBackoff)	Backoff
Ignore Far End Disconnect (Yes/No)	No
Release Acknowledge Timer (40-2400 units)(unit = 50 msec)	80
Address Signalling (Loop/DTMF)	DTMF
Disconnect Timer (100-300 msec)	300
Incoming Start Type (Immediate/Wink/Delay)	Wink
Dial Tone on Incoming Seizure (Yes/No)	Yes
Minimum Flash Timer (100-250 msec)	140
Maximum Flash Timer	280
Outpulse Delay Timer (100-2000 msec)	800
Outgoing Start Type (Wink/Immediate/Delay/Delay Integ)	Wink
Supv Timer (200-12750 msec)	200
Maximum Wink Timer (300-4000 msec)	400
Minimum Wink Timer (50-150 msec)	100
Guard Timer (100-6000 msec)	2000
Fake Answer Supervision After Outpulsing (Yes/No)	Yes
Ignore Answer Supervision (Yes/No)	Yes
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	No
Far End Connection (Main PBX/Satellite PBX/...)	Satellite PBX
Facility Type (Digital/Combination)	Digital

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the digital link assignment form

- 1 On the phone system Form Groups menu, select **Digital link forms**, then select **Digital link assignment**.
- 2 Change only those settings listed in the form below.

DIGITAL LINK ASSIGNMENT			
Cab Shlf Slot Link	Card Type	Digital Link Descriptor Number	Text
3 1 2 1	DSI Formatter	<b>10</b>	Voice Mail
3 1 2 2	DSI Formatter	<b>10</b>	Voice Mail

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.



## To change the trunk service assignment form

- 1 On the phone system Form Groups menu, select **Trunk forms**, then select **Trunk service assignment**.
- 2 Change only those settings listed in the form below.

TRUNK SERVICE ASSIGNMENT											
Trunk Service No.	RLT	COS	COR	Baud Rate	Inter cept No.	Non-dial Answer	In Points	Trunks 1	Night 2	Dial In Incoming Digit Modification	Trunk Label
10	No	15	1	300	1					0	Voice Mail

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the trunk assignment form

- 1 On the phone system Form Groups menu, select **Trunk forms**, then select **Trunk assignment**.
- 2 Change only those settings listed in the form below.

TRUNK ASSIGNMENT									
Cab	Shlf	Slot	Circ	Card Type	Trunk Number	Trunk Service Number	DTS Service Number	Circuit Desc. Number	Inter- connect Number
3	1	2	1	DSI Formatter	101	10		10	1
3	1	2	2	DSI Formatter	102	10		10	1

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the trunk group assignment form

- 1 On the phone system Form Groups menu, select **Trunk forms**, then select **Trunk group assignment**.
- 2 Change those settings listed in the form below, including the “Trunk number” field for all members.

TRUNK GROUP ASSIGNMENT	
Trunk Group Number: 10	
Hunt Mode (Circular or Terminal): Circular	
Trunk Group Busy RAD:	
Max Network Hops:	
Member	Trunk Number
1	101
2	102
3	103
4	104
5	105
6	106
7	107
8	108
24	124

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the route assignment form

- 1 On the phone system Form Groups menu, select **Automatic route selection forms**, then select **Route assignment**.
- 2 Change only those settings listed in the form below.

ROUTE ASSIGNMENT				
Route Number	Trunk Group Number	COR Group Number	Digit Modification Number	Digits Before Outpulsing
10	10	1	10	
11	10	1	11	
12	10	1	12	

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the feature access code assignment form

- 1 On the phone system Form Groups menu, select **System forms**, then select **Feature access code assignment**.
- 2 Change only those settings listed in the form below.

FEATURE ACCESS CODE ASSIGNMENT		
Feature Name	Primary Code	Alternative Code
Call Forwarding – Busy (External Source)	*62	
Call Forwarding – Busy (Internal Source)	*63	
Call Forwarding – Follow Me	*64	
Call Forwarding – No Answer (External Source)	*65	
Call Forwarding – No Answer (Internal Source)	*66	
Call Hold – Retrieve	*1	
Message Waiting – Activate	*20	
Message Waiting – Deactivate	#20	

### NOTE

The form shows only those settings that require changing.

## To change the call progress tone detection plan assignment

- 1 On the phone system Form Groups menu, select **Automatic route selection forms**, then select **Call progress tone detection plan assignment**.
- 2 Assign **Tone plan number 1** a maximum wait for a tone of two seconds.

CALL PROGRESS TONE DETECTION PLAN ASSIGNMENT	
Tone Plan Number: 01	Maximum Wait For A Tone (0-99 secs): 2
Action on Time-Out:	
Tone To Detect	Action To Take

### NOTE

The form shows only those settings that require changing.

## To change the digit modification assignment form

- 1 On the phone system Form Groups menu, select **Automatic route selection forms**, then select **Digit modification assignment**.
- 2 Change only those settings listed in the form below.

DIGIT MODIFICATION ASSIGNMENT			
Digit Modification Number	Number of Digits to Absorb	Digits to be Inserted	Final Tone Plan/Information Marker
10	4	<T01> *#50* <E> #	
11	4	<T01> * <R> * <E> * <F> #	
12	4	<T01> *#51* <E>	

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the system speed call (speed dialing) assignment form

- 1 On the phone system Form Groups menu, select **System forms**, then select **System speed call assignment**.
- 2 Change only those settings listed in the form below.

SYSTEM SPEED CALL ASSIGNMENT		
Speed Call Number	Actual Number	Overrides Toll Control
6700	8700	No
6800	8800	No
6900	8900	No

### NOTE

Highlighted fields are user defined. The form shows only those settings that require changing.

## To change the automatic route selection assignment form

- 1 On the phone system Form Groups menu, select **Automatic route selection forms**, then select **Automatic route select assignment**.
- 2 Change only those settings listed in the form below.

AUTOMATIC ROUTE SELECTION ASSIGNMENT			
Leading Digits: 8		COR Group Number:	
Second Dial Tone (Yes/No/Alternate): No			
Digits Dialed	Number of Digits to Follow	Type	Termination Number
7	2	Route	10
8	2	Route	11
9	2	Route	12

### NOTE

The form shows only those settings that require changing.

**To change the call rerouting first alternative assignment form**

- 1 On the phone system Form Groups menu, select **Call rerouting forms**, then select **Call rerouting first alternative assignment**.
- 2 Change only those settings listed in the form below.

CALL REROUTING FIRST ALTERNATIVE ASSIGNMENT									
First Alterna- tive Number	DID	Busy / DND Originating Device			No Answer Originating Device			Int	Direct- ory Number Routed To
		TIE	CO	Int	DID	TIE	CO		
1	Normal	Normal	Normal	Normal	This	This	This	This	6800

**NOTE**

Highlighted fields are user defined. The form shows only those settings that require changing.

In this example, with the form showing “6800” as a directory number, the following conditions are true:

- Calls forward to “6800.”
- Users dial “6700” to retrieve messages.
- Trunks are directed to “6900” for automated attendant.



# ■ Mitel 3300 ICP T1 with Digital E&M

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# Integration overview

The following steps describe how to set up a UNIVERGE UM8500 integration using a digital E&M interface with a Mitel 3300 ICP over T1 lines.

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up the integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See [“Requirements”](#) below.
- 2 Confirm that the integration is enabled.**  
See [“Configuring UNIVERGE UM8500 for integration”](#) on page 88.
- 3 Connect the phone system to the voice messaging server.**  
See [“Connecting the systems”](#) on page 89.
- 4 Program the phone system for digital E&M integration.**  
See [“Programming the Mitel 3300/SX-3200 for digital E&M integration”](#) on page 90.
- 5 Set up the phone system for the integration.**  
See [“Setting up UNIVERGE UM8500 for integration”](#) on page 93.

## Requirements

Before setting up the digital E&M integration, confirm that the site meets the following requirements and that all of the necessary components are available:

### Phone system

- Digital E&M on a Mitel 3300 or Mitel SX-3200 IP phone system.

### UNIVERGE UM8500 server

- The Dialogic T1voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sales representative.

- RJ-45 connector for the T1 line connection to the server.
- 15-pin connector for the T1 line connection to the phone system.



## Integration description

Digital E&M voice mail functionality provides voice processors with the ability to transfer calls through the digital E&M interface by flashing on the E-lead. Calls rerouted to the voice messaging system can only be identified by making use of Automatic Route Selection (ARS) and digit modification.

Type I or V E&M trunks can be used. T1-E&M type trunks also have the flash ability for call transfer.

### Integration features

The T1 E&M integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Mitel
Model	SX 2000 or newer
Switch software version	N16 or later
Integration	T1 E&M

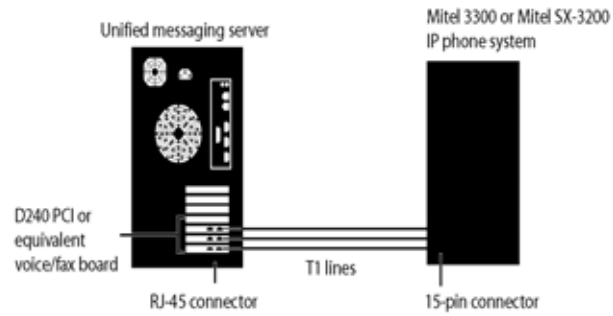
- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## Connecting the systems

After installing all of the required hardware on the voice messaging system, perform the following procedure to connect the phone system to the voice messaging system.

To install required voice messaging system hardware, see the *Installation Guide*.

### System connections



### To connect the phone system and UM8500

- 1 Connect the 15-pin connector to the T1 board on the phone system.
- 2 Connect the RJ-45 connector to the voice messaging voice/fax board dedicated to the voice messaging system T1 connection.

# Programming the Mitel 3300/SX-3200 for digital E&M integration

After connecting the systems, program the Mitel 3300/SX-3200 for digital E&M integration.

## NOTES

- Voice mail ports within a voice mail-type hunt group can be dedicated to message activation/deactivation by assigning and applying a separate Class of Service option.
- Class of Service option ONS/COV/E&M voice mail ports must be enabled for members of a voice mail-type hunt group.
- Attendant consoles are unable to receive a message waiting indication.
- Single line sets without message waiting lamps require the Message Waiting Audible Tone Notification COS option enabled.
- MWIs activated from an E&M voice mail port are considered to be dialed message waiting type messages. These messages can be deactivated from any E&M voice mail port or any system port that is not in a voice mail-type hunt group.
- Voice mail ports can be assigned to multiple voice mail hunt groups.

## To program the Mitel 3300/SX-3200 for digital E&M integration

- 1 In the E&M Trunk Circuitry Descriptor Assignment form, program the parameters as shown in the following table:

### E&M Trunk Circuit Descriptor Assignment settings

Setting	Value
Address Signaling	DTMF
Incoming Start Type	Wink or IMM
Minimum Flash Timer (100-250ms)	100
Maximum Flash Timer (200-250 ms)	250
Outgoing Start Type	Wink or IMM
Fake Answer Supervision after Outpulsing	Yes
Ignore Answer Supervision	Yes
Release Supervision Expected	Yes
Audio Inhibit Until Answer Supervision	No
Drop Digit Rcvr for Outgoing Audio Before Ans Sup	No

## NOTE

The Immediate (IMM) incoming and outgoing start type is the preferred method of E&M signaling as it performs faster than Wink.

- 2 In the Class of Service Options Assignment form for the E&M voice mail ports, program the parameters as shown in the following table:

### Class of Service Options Assignment settings

Setting	Value
ONS/COV/E&M Voice Mail Port	Yes
Dialed Night Service	Yes (optional)
Message Waiting	Yes
Dialing Conflict Timer (2-5s)	2 (optional)
Allow Trunk Flash	Yes

- 3 Program the Trunk Service Assignment form to apply the relevant Class of Service (COS) and Class of Restriction (COR) to the E&M voice mail ports. Enter 0 in the **Absorb** field.

**NOTE**

Toll fraud should be considered when assigning a COR to the voice mail ports. External dialing may be required for pager notification or message forwarding.

- 4 Program the E&M trunks in the Trunk Assignment and Trunk Group Assignment forms using circular hunting.
- 5 In the Call Progress Tone Detection Assignment form, program the parameters as shown in the following table:

**Call Progress Tone Detection Plan Assignment settings**

Setting	Value
Maximum Wait for Dial Tone (0-99)	5
Tone Plan Number	01
Action on Timeout	output pulse default

- 6 In the Digit Modification Assignment form, program the parameters as shown in the following table:

**Digital Modification Assignment settings**

Number of Digits to Absorb	Digits to be Inserted
1	<T01>*
1	<T01>* <E>  This is optional for message retrieval and analog networking.

**NOTE**

It may be necessary to insert a tone, for example, \* or #, after the tone plan if the voice mail ports are configured to provide automated attendant functionality. The tone required will put the processor into telephone answering mode.

- 7 In the Route Assignment form, program the route assignments then reference the relevant trunk group and digit modification numbers. Digits before outpulsing can be set to eliminate overlap outpulsing. However, this is not required.
- 8 In the ARS Leading Digits Assignment form, program the parameters as shown in the following table:

**ARS Leading Digits Assignment settings**

Setting	Value
Leading digits	8
Second Dial tone	No
COR Group Number	

- 9 In the ARS Digits Dialed Assignment form, program the following three sets of parameters as shown in the following table:

**ARS Digits Dialed Assignment settings**

Setting	Value		
Digits Dialed		*	*
Number of digits to follow	4	4	0
Terminated Type Route	Route	Route	Route
Termination Number	01	01	01

**NOTES**

- The first ARS entry is used for call rerouting.
- The second ARS entry defines the message retrieval route, if required. The \* is also sent, assuming the voice mail will respond by prompting the subscriber to enter his or her mailbox number.
- "Digits to follow" is defined by the extension number's digit length.

- 10 In the Feature Access Code Assignment form, assign message waiting activate and deactivate codes.

Optionally, assign access codes to **Dialed Day/Night Service Inquire** and **Message Waiting Inquire** if these are used by the voice processor.

- 11 In the Class of Service Options form, enter the following customer extension parameters, as shown in the following table:

**Class of Service Options settings**

Setting	Value
Call Forwarding (External Destination)	Yes
Message Waiting Audible Tone Notification	Yes (optional)
Multiline Set Voice Mail Callback Message Erasure Allowed	No (optional)
Call Forward No Answer Timer (0-125 s)	15 (default)

Subscribers will call forward to the ARS leading digit followed by the user's extension number; for example, a subscriber would dial **8** for the **ARS Leading Digit**, then 5 000 if the user's extension number is 5000.

System call rerouting can also be used. To reroute a system call, reroute extensions to a system speed call number containing the ARS leading digit, for example, 8 as used in the previous example, and the user's extension number.

# Setting up UNIVERGE UM8500 for integration

After connecting the systems and programming the Mitel 3300/SX-3200 for digital E&M integration, set up the UNIVERGE UM8500 for integration.

## Configuring phone answering

Using E&M trunk circuits for voice mail applications requires that the subscriber be identified to the voice processor through ARS using digit modification. Calls are rerouted externally through ARS where the leading digit is absorbed, and pauses and any necessary tones are inserted. The subscriber's mailbox is then outputted to the voice processor providing the appropriate personal greeting for message taking.

If the voice processor ports are configured as auto attendant, insert another tone in front of the subscriber's mailbox number to place the voice processor into phone answering mode.

## Configuring message waiting

Message waiting indications can be set from the E&M voice processor circuits by dialing the message waiting activate/deactivate feature access codes assigned on the system, followed by the subscriber's extension number.

## Configuring message retrieval

Subscribers retrieve messages by accessing an ARS route and dialing their extension number. Digit modification absorbs the leading digit, inserting a pause and any other necessary tones, followed by the extension number dialed. The subscriber is then prompted for his or her password.

Messages can be retrieved external to the system dependent upon the incoming trunk access to the voice processor. Subscribers normally have to manually enter one or two digits, followed by their mailbox number, to log on to their mailbox.

## Configuring Auto Attendant

Voice processors can perform auto attendant functions by flashing the E&M trunk on the system E-lead. Incoming trunks can be directed to a system speed call number containing the ARS digits required to access the voice processor. This allows users to transfer to valid destinations throughout the system.

Since most subscriber extensions typically reroute the caller to the messaging system when the extension is busy or there is no answer, program the voice processor to perform an unscreened transfer to provide the most efficient use of the voice mail ports.





# ■ Mitel 3300 ICP with IP integration

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide* to set up the messaging system for an IP integration with a Mitel 3300 ICP.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements.

Verify that all phone system and UM8500 server requirements have been met. See “[Requirements](#),” below.

### 2 Program the phone system and extensions.

See “[Programming the phone system](#)” on page 98.

### 3 Configure UM8500 for the integration.

See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 102.

## Requirements

The steps to set up the Mitel 3300 ICP with IP integration require the following:

### Phone system

- Mitel 3300 ICP with software version 5.2.6.8-1 or later installed.
- Mitai/Tapi Computer integration.
- One 3300ICP IP user license for each messaging port.
- One 3300ICP IP user license for each IP phone.
- The phone system ready for voice over IP integration as described in the phone system installation guide.
- All messaging ports and IP phones configured to use the G711 audio codec.
- A network switch with enough ports to handle all IP phones, the voice server and the phone system.

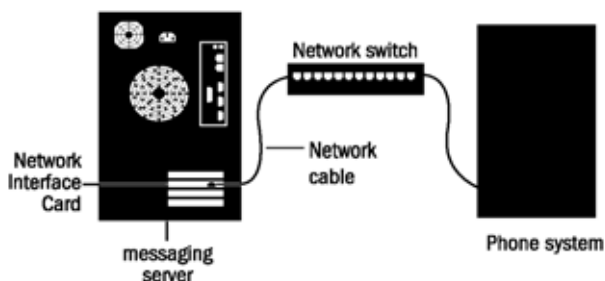
### UNIVERGE UM8500 server

- UNIVERGE UM8500 installed and ready for the integration as described in the Installation Guide.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- A network cable to connect the voice server to the network containing the phone system.

## Integration description

### How the integration works

The Mitel 3300 ICP with IP integration uses an Ethernet line to connect the phone system and UM8500.



The phone system sends the following information with forwarded calls:

- The called party's extension.
- The calling party extension (for internal calls) or the calling party's phone number (if it is an external call and the system uses caller ID)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The Mitel 3300 ICP with IP integration with UM8500 provides the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information displays in the message's subject line in Microsoft Outlook® (or other desktop messaging application).

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password may be required.

**Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call, based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

Do the following procedures to configure the Mitel 3300 ICP with IP integration. Programming the phone system or extension options other than those supplied in the following procedures may affect performance.

## IMPORTANT

The IP integration with Mitel 3300 ICP requires all phones and voice mail ports to use the G711 audio codec. The integration does not support the G729 audio codec.

## Steps for changing the phone system settings

The phone system displays these settings as a series of forms that are available after selecting **Customer data entry** on the console. The following pages show representations of the forms. Change only the settings listed in each form.

Change the settings for each form in the exact sequence shown in the following steps. Changing the settings for each form out of sequence may cause error messages.

## NOTE

These procedures should only be performed by a qualified phone system technician.

Follow these steps to change the phone system settings.

- 1 Set up the DHCP settings.**  
See [“To configure DHCP settings” on page 99.](#)
- 2 Set up the IP voice mail extensions.**  
See [“To configure IP voice mail extensions” on page 99.](#)
- 3 Set up class of service options for voice mail extensions.**  
See [“To configure class of service options” on page 100.](#)
- 4 Assign the class of service to the voice mail extensions.**  
See [“To assign the new class of service to the voice mail extensions” on page 100.](#)
- 5 Set up a hunt group containing the voice mail extensions.**  
See [“To set up the hunt group” on page 100.](#)

## To configure DHCP settings

- 1 On the phone system System Configuration menus, select **System Capacity > License and Option Selection**.
- 2 Confirm that the number of **IP User Licenses** and **IP Device Licenses** are equal to or greater than the number of voice mail extensions and IP phones.
- 3 Confirm that **IP Networking**, **Networking Option**, and **Mitai/Tapi Computer Integration** are each set to **Yes**.
- 4 Click **System Administration > DHCP**.
- 5 Confirm that **DHCP Server** is enabled.
- 6 Click **System Administration > DHCP > DHCP Static IP**, to specify the **Address** and **Subnet**. Consult your system administrator for this information.
- 7 Click **System Administration > DHCP > DHCP IP Address Range**, to specify the **Start** and **End** of the range of IP address of the voice mail extensions. Also specify the **Subnet** and **Lease Time**.
- 8 Click **System Administration > DHCP > DHCP Options**, then change the settings listed in the form below.

ID	Name	Format	Value	Scope
66	TFTP Server Name	IP Address	172.16.16.91	Global
67	Boot File Name	ASCII String	/tftpboot/28260	Global
128	User Defined	IP Address	172.16.16.91	Global
129	User Defined	IP Address	172.16.16.91	Global
130	User Defined	ASCII String	MITEL IP PHONE	Global

## To configure IP voice mail extensions

Voice mail extensions must be added one at a time, because the MAC addresses are not incremental and must be manually added.

- 1 On the phone system System Configuration menu, click **Devices > IP Telephones > Multiline IP Sets > Multiline IP Set Configuration**.
- 2 Click **Add**.
- 3 Select **5020 IP** from the **Device Type** list.
- 4 Type the voice mail extension number in the **Number** field.
- 5 Type 1 in the **Interconnect Number** field

- 6 Type the address for the voice mail extension in the **MAC Address** field in the form A1 : 21 : 00 : 00 : <nn> : <nn>, where <nn>:<nn> represents the extension number in MAC format.

In MAC addresses the digits 1-9 represent the numbers of 1-9 while A represents the number 0. For example, extension number 101 would be represented 01:A1. The MAC address for a the voice mail extension 101 would be A1:21:00:00:01:A1, extension 102 would be A1:21:00:00:01:A2, extension 210 would be A1:21:00:00:02:1A, while extension 1001 would be A1:21:00:00:1A:A1.

- 7 Click **Save**.
- 8 Repeat steps 2 through 7 for each voice mail extension.

### To configure class of service options

- 1 On the phone system System Configuration menu, click **Devices > Class of Service Option Assignment**.
- 2 Select an unused **Class of Service**, then click **Change**.
- 3 Select **Yes** for the options listed below:
  - **ACD Silent Monitor Accept**
  - **ACD Silent Monitor Allowed**
  - **ACD Silent Monitor Notification**
  - **Call Announce Line**
  - **COV/ONS/E&M Voice Mail Port**
  - **Execute Busy Override**
  - **HCI/CTI/TAPI Call Control Allowed**
  - **HCI/CTI/TAPI Monitor Allowed**
  - **Public Network Access via DPNSS**
  - **Public Network To Public Network Connection Allowed**
- 4 Click **Save**.

### To assign the new class of service to the voice mail extensions

- 1 On the phone system System Configuration menu, click **Devices > Station Service Assignment**.
- 2 Select the first IP voice mail extension.
- 3 Click **Change**.
- 4 Set the **Class of Service - Day** to the new class of service.
- 5 Set the **Class of Service - Night1** to the new class of service.
- 6 Set the **Class of Service - Night2** to the new class of service.
- 7 Click **Save**.
- 8 Repeat steps 3 through 7 for each IP voice mail extension.

### To set up the hunt group

- 1 On the phone system System Administration menu, click **Call Handling > Hunt Groups > Hunt Group Assignment**.
- 2 Click **Add**.

**3** In **Hunt Group**, type the number for the hunt group. This number should be one less than the first voice mail extension.

For example, if the first voice mail extension is 101, the hunt group number should be 100.

**4** For **Hunt Group Mode** select **Circular**.

**5** Set **Hunt Group Type** to **Voice**.

**6** Click **Save**.

**7** Click **Add Member**.

**8** In the **Enter the number of records to add** field, type the number of voice mail extensions.

**9** In the **Define the Add Range Programming Pattern** section, in the **Number** field, type the extension of the first voice mail extension. In **Increment by** field type 1.

**10** Click **Save**.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To configure the UM8500 server for integration

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Key Dump**.
- 2 Verify the **Integration** setting is **MITELIP** or **Multiple Integrations**.
- 3 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 4 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

- Extension = 99995
- Password = 12345

- 5 Confirm that the settings match those in the following table. If the settings are incorrect, the integration features may not be enabled.

### Phone system setting

Parameter	Required settings
Manufacturer	MITEL
Model	3300 ICP
Specific Version or Country	5020 IP PHONE EMULATION
Integrations	IP

- 6 Stop UNIVERGE UM8500 if it is running.
- 7 Go to **Start > Control Panel > IP Phone Emulation**. The Mitel Networks IP Phone Emulation Settings dialog box appears.
- 8 Click the **Adapter Settings** tab for the adapter used to connect the Mitel IP switch.

The **Selected Network Card** field should display the name of the network card; for example, **Intel(R) Pro/100 Desktop Adapter**, and the IP Address assigned to the card.

Leave the **Current IP Address** field blank if the IP is assigned automatically by the DHCP Server. Type the IP address only if the messaging system server has a static IP address.

- 9 On the **Switch 0** tab, type a **Name** for the Switch. For example, type **Mitel SX3300 Switch**.
- 10 Type the IP address of the switch in the **IP Address** field.  
  
The IP Address must belong to the same domain as the network adapter. For example, if the IP Address of the network adapter connecting to the messaging system server is 172.20.18100, the IP Address of the switch may be 172.10.18.90.
- 11 Right click in the white box with the columns headings **Prime DN** and **Phone ID** and select **Insert**.  
  
The Insert Phone Entry dialog box appears.
- 12 Type a voice mail port number in the **PrimeDN** field.
- 13 Click **Apply**, then repeat step 12 to add all voice mail port numbers.  
  
To delete a port, right click on the port and select **Delete**.  
  
To edit a port, right click on the port and select **Edit**.
- 14 Click **Close** when you are finished adding the voice mail port numbers.



- 15 Start UNIVERGE UM8500.
- 16 In your Internet browser, go to UM8500 Administrator  
(`http://<server_name>/saweb`).
- 17 Go to **System > Ports** and check the extensions of each port displayed in the Port Table section of the page.  
  
Type the extension for each port. The ports must appear in the same order as in the Mitel Networks IP Phone Emulation Settings dialog box.



# ■ NEC NEAX 2000 with Direct Digital (D82)

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements.

Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.

### 2 Configure UNIVERGE UM8500 for the integration.

See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 108.

### 3 Program the phone system and extensions.

See “[Programming the phone system](#)” on page 109.

## Requirements

The steps to set up the NEC NEAX<sup>®</sup> 2000 direct digital integration require the following:

### Phone system

- NEAX 2000 IVS, 1300 series, revision NJ 4.04 or later, installed and ready for the integration as described in the phone system documentation.
- One or more of the following digital line cards set up as voice messaging ports connected to the voice boards in the messaging system:

Card name	Description
PN-2DLCB	Digital line card, 2 ports
PN-2DLCN	Digital line card, 2 ports
PN-4DLCA	Digital line card, 4 ports
PN-4DLCD	Digital line card, 4 ports
PN-4DLCM	Digital line card, 4 ports
PN-4DLCQ	Digital line card, 4 ports
PN-8DLCP	Digital line card, 8 ports

#### CAUTION

Use only the black and yellow pair of wires. The RJ-14 connectors on the Dialogic D42-NE2 voice board use only a single pair of wires.

### UNIVERGE UM8500 server

- The Dialogic digital voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

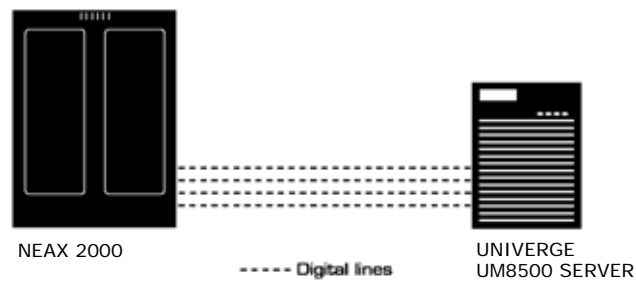
For the latest information on supported voice boards for UM8500, contact a sales representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

The NEAX 2000 direct digital integration uses digital lines to connect the phone system and messaging system server. The phone system digital voice messaging ports connect to the D82 boards in the messaging system server. Each D82 voice board emulates up to four Dterm<sup>®</sup> digital phones. The following illustration shows the required connections.



The phone system sends the following information with forwarded calls:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The NEAX 2000 digital integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook<sup>®</sup> or other desktop messaging application.
- **Constant message count.** The number of new messages is displayed on a subscriber's Dterm phone while the phone is on hook.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2000 IVS
Switch software version	1300 Series and above without MCI
Integration	Direct Digital

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration's performance can be affected.

## NOTE

The following procedures are written with the assumption that you will use a Customer Administration Terminal (CAT) or Maintenance Administration Terminal (MAT) to program the phone system.

### To program the digital voice messaging ports in the phone system

- 1 Assign each voice messaging port to a Line Equipment Number (LEN) by using command code 10.
- 2 Set or clear the function key assignments for each voice messaging port by using command code 90, YY = 00:
- 3 Enable tone ringer on function key number 16 for each voice messaging port by using command code 90, YY = 01.
- 4 For each voice messaging port, assign the prime line number to the voice messaging port by using command code 93.
- 5 Assign all the voice messaging ports to a Uniform Call Distribution (UCD) group by using command code 17, Y = 0.
- 6 Designate the pilot number for the UCD group that contains the voice messaging ports by using command code 17, Y = 1.

## NOTE

The pilot number must be a phantom single line extension. A phantom single line extension is an analog extension assigned, by using command code 10, to a LEN with no card in the slot.

- 7 Assign the UCD pilot number of the voice messaging ports to a UCD group number by using command code 17, Y = 2.
- 8 Designate each voice messaging port as a digital voice messaging port by using command code 13, YY = 24.
- 9 Assign the UCD pilot number of the voice messaging ports to a tenant number by using command code 51, YY = 15.
- 10 Enable a periodic recording tone to be sent out from the phone system on Live Record by using command code 08. Set basic feature number 109 to **to be sent**.
- 11 Enable the message waiting service on each phone that is using UM8500 by using command code 13, YY = 03.

### To program the Dterm phones that use Live Record

For each Dterm phone that uses the UM8500 Live Record feature, perform the following steps:

- 1 Designate the following function key assignments by using command code 90, YY = 00:
- 2 Assign the prime line number to the UCD pilot number of the voice messaging ports by using command code 93.

## See also

ETI-164, NEAXMail AD-40 Installation and Programming, Volume 5, Issue 4 (March 1998)

NEAX 2000 IVS System Manual, Volume II, Command Manual





# ■ NEC NEAX 2000 with IP Protims

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all equipment, phone system, and messaging system server requirements have been met. See “[Requirements](#),” below.

### 2 Program the phone system.

See “[Programming the phone system](#)” on page 114.

### 3 Configure UNIVERGE UM8500 for the integration.

See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 115.

## Requirements

The steps to set up the NEC NEAX 2000 IP Protims integration require the following:

### Equipment

- All Dterm<sup>®</sup> IP phones that will be used with UNIVERGE UM8500 must have software version 1.2 or newer.

### NEAX 2000 phone system

- NEAX 2000 IPS software release 8 or newer installed and ready for the integration as described in the phone system documentation.
- Password encryption type for IP extensions is MD5, see command CM08 YY=517 on 0.
- Fully functional IP PAD cards with VCTI sub-boards.

#### NOTE

IP PAD cards provide interface function between IP telephony, terminals or other devices on LAN, and non-IP telephony, conventional networks such as PSTN, ISDN, and private networks.

### UNIVERGE UM8500 server

- If the phone system uses G729 codec, the Sipro Lab G729A codec driver must be installed on the messaging system server. The installation file for this driver is named sl\_g729a\_setup.exe and can be found in the Voice Mail\Utilities folder on the *Installation* disc.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

NEAX 2000 IP Protims integration uses a network connection to connect messaging system server with the phone system. Each voice messaging port emulates an IP Terminal extension. The communication between the parties is facilitated by a series of Voice Over IP (VOIP) protocols, such as DRS, Protims, RTP, H245, Voice control, used for call signaling and voice streaming, some of them being NEC proprietary protocols.

### Integration features

The NEAX 2000 IP Protims integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration's performance can be affected.

## NOTE

The following procedures are written with the assumption that you will use a Customer Administration Terminal (CAT) or Maintenance Administration Terminal (MAT) to program the phone system.

### To program the IP voice messaging ports in the phone system

- 1 Make sure that the NEAX 2000 phone system has licenses for using IP extensions using command F88>12>.
- 2 Configure the voice messaging ports as IP Terminal extensions, the default IP extensions type.
- 3 Write down the MWI analog codes that the NEAX 2000 phone system uses for turning the phones lamps on and off. These codes are needed when configuring UM8500 to work with the integration.

## NOTE

The NEAX 2000 phone system may not have any settings to use codes for MWI analog operations. If this is the case, use command CM 20 Y = 0/1/2/3 > set code > A040, CM 20 Y = 0/1/2/3 > cancel code > A041, CM 13 Y = 03 > station > 0 - for providing each station with Message Waiting capability.

- 4 Make sure that the following service features are enabled in the phone system:
  - Call hold
  - Assignment of no answer timer for blind transfer to station or blind transfer attendant
  - Blind transfer
- 5 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group, use commands CM 17 Y=0 /1 /2.
- 6 Set the same location ID for all voice messaging ports and set either or both of the codecs G711, U-Law or A-Law, and G729A with payload size equal to 40 milliseconds for that location ID using commands CM12 YY=39, CM67 YY=00, and CM42 YY=100 ~ 177.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **IP Protims**.
- 4 If the setting is not **IP Protims**, contact a sales representative for the necessary system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, integration features might not be enabled.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	NEAX 2000 IPS
Switch Software Version	Software Release 8 or newer with IP ports
Integration	VOIP-PROTIMS

- 6 Enter the MWI analog codes that the NEAX 2000 phone system uses for turning the phones lamps on and off. Save the changes.
- 7 Stop UNIVERGE UM8500.
- 8 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 9 Enter IP address of the phone system.
- 10 Set the general functionality for the ports as Terminal.
- 11 Under **Manage ports**, click **Add** to add a new port.  
Enter the Extension and Password for each port.
- 12 If the system uses one or more IP PADs, under Manage Gateways click **Add**.  
Enter the IP Address and set the **Has DSP** to 0 for each gateway.
- 13 Click **OK** to save the changes and then close VOIPAdmin.
- 14 Start UNIVERGE UM8500.
- 15 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 16 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page. If the extensions are incorrect, stop UNIVERGE UM8500, verify the phone system settings made for the voice messaging ports, see [“To program the IP voice messaging ports in the phone system” on page 114](#), and use the VOIPAdmin tool to make the necessary adjustments.



# ■ NEC NEAX 2000 with OAI

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# Integration overview

UNIVERGE UM8500 uses the Open Application Interface (OAI) to integrate with NEC phone systems using a TCP/IP link between the messaging system server and the phone system. OAI Integration can be used with IP lines and requires that the OAI Integration server is installed.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone systems and messaging system server requirements have been met. See [“Requirements” on page 119.](#)
- 2 Program the phone system and extensions.**  
See [“Programming the phone system” on page 121.](#)
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration” on page 128.](#)
- 4 Install the OAI Integration Server software.**  
See [“Installing the OAI Integration Server software” on page 130.](#)
- 5 Configure the OAI Integration Server.**  
See [“Configuring the OAI Integration Server” on page 131.](#)
- 6 Install and start the OAI service.**  
See [“Installing and starting the OAI service” on page 134.](#)



## Requirements

The steps to set up the NEC NEAX 2000 with OAI integration require the following:

### Phone System

- A NEAX 2000 IVS, IVS 2, or IPS phone system
- A network connection to the messaging system server.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Analog	One analog station port for each voice messaging port.
T1	One digital line interface card for each group of 24 voice messaging ports.
Digital	One digital station port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port.

### UNIVERGE UM8500 server

- A network connection with the phone system. A second network card on the messaging system server to connect directly to the phone system is recommended.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- OAI Integration server installed.
- A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

The UNIVERGE UM8500 unified messaging solution can use the Open Application Interface (OAI) to integrate with NEC phone systems including NEAX 2000 IVS/IVS2 and NEAX 2000 IPS. The OAI integration is established over a TCP/IP link between the messaging system server and the NEC phone system.

## How the integration works

There are two basic types of OAI integrations:

- **OAI pure integration** . This type of integration uses only the TCP/IP link to connect to the phone system. It has an OAI monitoring slot opened with the phone system and dispatches calls to the enabled voice messaging systems. This type of OAI Integration provides the most efficient load balancing capability by dispatching new incoming calls from a monitored number, the voice mail pilot, to free voice mail ports.
- **OAI UCD - Serial MCI integration** . The OAI Integration Server uses complementary Message Center Interface (MCI) integration capabilities through the serial interface. The complementary MCI integration feature of the OAI Integration Server is not a genuine OAI integration. The integration does work in Common Channel Interoffice Signaling (CCIS) networked environments between multiple NEC phone systems when the remote phone systems do not have OAI or their software revision does not feature call-forwarding information in the OAI layer. The MCI link is used as complementary integration support for situations where the OAI layer does not provide full integration, such as in older, legacy phone system environments.

## Integration features

The NEAX 2000 OAI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting**. When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID**. UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access**. A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging**. UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI)**. When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.
- **Live Record**. A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration's performance might be affected.

The steps used to program the phone system depends on the phone system being used.

- For NEAX 2000 IVS or IVS 2 systems, use the procedure below.
- For NEAX 2000 IPS systems, see the procedure on page 124.

## Setting up the NEAX 2000 IVS or IVS 2

### NOTE

The following procedures are written with the assumption that you will use a digital NEC Dterm Series E phone, using the Customer Administration Terminal (CAT) mode, to enter the settings presented in the procedures.

### To set the B-Load and C-Load

- 1 Set the sense wheel on CP14 to **B** and press **SW1**.
- 2 Wait for minor alarm to occur.
- 3 Set the sense wheel back to **O**.
- 4 After minor alarm clears, set the sense wheel to **C** and press **SW1**.
- 5 Wait for minor alarm to occur.
- 6 Set the sense wheel back to **O**.

### CAT-MODE key usage

To accomplish certain tasks, use the following keys on Dterm phone.

Task	Key(s)
Initiate	Transfer + Conf + * + Transfer + Conf + #
Data Entry	Recall
Execute	Conf
Command Prompt	Redial
Step	Speaker
Clear Data	CCC

### To set the Message Center Interface (MCI) configuration

### IMPORTANT

Only adjust the MCI settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

- 1 **Verify the CP14 card is plugged in to MP12/FP12 slot.**
- 2 **Verify the RS=0 to MCI connection, RS 0 is the lower socket on the CP14 card.**
- 3 **Verify the 9800,8,n,1 serial communication parameter settings are set as described in the table below. If a parameter is not the same, change it to the setting in the table.**

Command	Description
0401>01>0	Connection port for MCI = 0
08>708>0	MCI extension length = 6 (!)
08>025>0	Message indication = MESSAGE

Command	Description
08>443:1-0	Set the type of VMS integration: MCI (0) instead of DTMF (1) (!)
4000>0>10	Function = MCI
4001>0>1	Data length = 8 bit
4002>0>1	Parity check = Ineffective
4004>0>0	Stop bit = 1
4008>0>4	Data speed = 9600 bps

## To set the OAI configuration

Verify the following configurations and settings.

- 1 Verify the AP01 card (OAI) is plugged in to LT09/AP09.
- 2 Verify the CC01 card (LAN) is plugged in to LT10/AP10.
- 3 Verify the AP01 & CC01 cards are connected with NR-553876-001 cable.
- 4 Verify the AP01 chipset = 2931.
- 5 Verify the CC01 chipset = 2932 (!).
- 6 Verify the IP Address is set per the phone system configuration, for example 172.16.19.60.
- 7 Verify the Subnet mask is set per the phone system configuration, for example 255.255.255.0.
- 8 Verify the OAI pilot is set per the phone system configuration, for example 299.
- 9 Verify the monitored extensions, voice ports, are set per the phone system configuration, for example 209-212.
- 10 Verify the monitored DTerm Function Keys on extension 201 are set per the phone system configuration, Example 09-12 (function codes F1032-F1035; Terminal Mode Facility codes 192-195).
- 11 Verify the OAI monitoring slots 1024-1039, in the OAI server configuration according to the OAI XML template chosen, are set to:

Command	Description
B-load, C-load	Reset PBX memory
F83>0>...	IVR # (need to restart system to take effect)
Reset CP14 (SW1)	Update changes
F83>2>0	0 = IVR code is good
050>	Hardware initialization for AP01
AP01 sense wheel on 04	Set the OAI slot 4 (hardware)
Reset CP14 (SW1)	Update changes
050>04:07	Set the OAI slot 4 (software)
D79>00>172 D79>01>016 D79>02>019 D79>03>060	Assign IP address: 172.16.19.60
D79>04>255 D79>05>255 D79>06>255 D79>07>000	Assign subnet mask: 255.255.255.0
Reset CP14 (SW1)	Update changes

**NOTE:** Do not run the following command if the OAI UCD - Serial MCI integration method is used.

Command	Description
11>000>299	Assign subline 299 (OAI pilot) to LEN 000
<b>NOTE</b>	Do not run the following command if the OAI UCD - Serial MCI integration method is used.
171>299:3 171>209:3 171>210:3 171>211:3 171>212:3	Program the OAI pilot (299) and the voice ports (211 - 214) as monitored numbers.
<b>NOTE</b>	Do not run the following command if the OAI UCD - Serial MCI integration method is used.
172>299:NONE-00	Set the 299 as member of the Group 00 (other than any other UCD group - 01)
D70>F1032>NONE-192 D70>F1033>NONE-193 D70>F1034>NONE-194 D70>F1035>NONE-195	Assign Terminal Mode Facility (TMF) codes to OAI monitored function keys; the available OAI monitored function keys are in the range of F1032-F1047 (16 keys); the available TMF codes are in the range of 192-255;
9000>201,09>F1032 9000>201,10>F1033 9000>201,11>F1034 9000>201,12>F1035	Assign the function codes F1032-F1035 to DTerm function keys 09-12, for extension 201;
08>045>0	Executive Override beep: 0 = play only one beep on initiation 1 = beep every 4 seconds
08>046>0	Executive Override beep: 0 = disable Executive Override beep 1 = enable Executive Override beep

## To set the UCD hunt group configuration

### IMPORTANT

Only adjust the UCD hunt group settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

- 1 Verify that the UCD group is set to: 220-223.
- 2 Verify that the UCD pilot is set to: 220.

Command	Description
170>220:NONE-221 170>221:NONE-222 170>222:NONE-223 170>223:NONE-220	Set up the 220-223 range as a UCD hunt group.
172>220:NONE-01 172>221:NONE-01 172>222:NONE-01 172>223:NONE-01	Set the 220-223 range as part of Group 01, other than the OAI group (00) of the monitored number(s).
171>220:0-1	Set extension 220 to be the UCD pilot (master).
1310>220:0 1310>221:0 1310>222:0 1310>223:0	Set the 220-223 range as messaging system (VMS) stations (for MCI / J-records appearance).

## To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following settings or that the configuration files are updated.

- 1 The OAI LiveRecord feature uses the following settings by default.

### WARNING!

If these defaults are changed, the corresponding settings in the OAI Integration Server must be set up accordingly by editing the XML configuration file.

Dterm Function Key	Function Code	Terminal Mode Facility (TMF) Code	LiveRecord Function
09	F1032	192	Record
10	F1033	193	Pause/Resume
11	F1034	194	Re-record
12	F1035	195	End

- 2 When using LiveRecord, the monitored extensions or voice ports are allowed to use Executive-Override with the LiveRecord feature. Normally, the OAI monitoring is set by CMD17,Y=1, Extension>3, but this value will automatically activate the Off-Hook Suppress bit. Instead, the UNDOCUMENTED value of 4 that will take the Off-Hook Suppress OFF is used.
- 3 The Executive Override code programmed on the phone system command 200>A4>A006, for example, should match the BargeInCode parameter setting in the UNIVERGE UM8500 integration file. In this case the code is \*4 and the UM8500 entry is BargeInCode = X,&,\*4

## Setting up the NEAX 2000 IPS

### NOTE

The following procedures are written with the assumption that you will use a digital NEC Dterm Series E phone, using the Customer Administration Terminal (CAT) mode, to enter the settings presented in the procedures.

## To set the B-Load and C-Load

- 1 Set the sense wheel on CP14 to **B** and press **SW1**.
- 2 Wait for minor alarm to occur.
- 3 Set the sense wheel back to **O**.
- 4 After minor alarm clears, set the sense wheel to **C** and press **SW1**.
- 5 Wait for minor alarm to occur.
- 6 Set the sense wheel back to **O**.

## CAT-MODE key usage

To accomplish certain tasks, use the following keys on Dterm phone.

Task	Key(s)
Initiate	Transfer + Conf + * + Transfer + Conf + #
Data Entry	Recall
Execute	Conf
Command Prompt	Redial
Step	Speaker

Task	Key(s)
Clear Data	CCC
Backup/Save	EC6>0> 3 = idle; 0 = start backup

## To set the Message Center Interface (MCI) configuration

### IMPORTANT

Only adjust the MCI settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

- 1 **Verify that the CP14 card is plugged in to MP12/FP12 slot.**
- 2 **Verify that the RS=0 to MCI (RS 0 is the lower socket on the CP14 card) connection.**
- 3 **Verify that the 9800,8,n,1 serial communication parameter settings are set as described in the table below. If a parameter is not the same, change it to the setting in the table.**

Command	Description
0401>01>0	Connection port for MCI = 0
08>708>0	MCI extension length = 6 (!)
08>025>0	Message indication = MESSAGE
08>443:1-0	Set the type of VMS integration: MCI (0) instead of DTMF (1) (!)
4000>0>10	Function = MCI
4001>0>1	Data length = 8 bit
4002>0>1	Parity check = Ineffective
4004>0>0	Stop bit = 1
4008>0>4	Data speed = 9600 bps

## To set the OAI configuration

Verify the following configurations and settings.

- 1 **Verify that the CP14 card is plugged in to MP12/FP12 slot.**
- 2 **Verify that the IP Address is set per the phone system configuration, Example 172.16.19.61.**
- 3 **Verify that the Subnet mask is set per the phone system configuration, Example 255.255.255.0.**
- 4 **Add the non-default extensions lines (non-default hardware LENS): 224-239.**
- 5 **Verify that the OAI pilot is set per the phone system configuration, for example 299.**
- 6 **Verify that the monitored extensions or voice ports are set per the phone system configuration, for example 208-231.**
- 7 **Verify that the monitored DTerm Function Keys on extension 201 set per the phone system configuration, for example 09-12 (function codes F1032-F1035; Terminal Mode Facility codes 192-195).**
- 8 **Verify that the OAI monitoring slot 60030, in the OAI server configuration according to the OAI XML template chosen, is set to:**

Command	Description
B-load, C-load	Reset PBX memory
F83>0>...	IVR # (need to save and restart system to take effect)

Command	Description
F83>2>0	0 = IVR code is good
0B00>00>172016019061	Assign IP address: 172.16.19.61
0B00>01>255255255000	Assign subnet mask: 255.255.255.0
10>024>224 10>025>225 10>026>226 through 10>039>239	Add non-default hardware LENS for the range 224-239
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
11>000>299	Assign subline 299 (OAI pilot) to LEN 000
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
171>299:3 171>208:3 171>209:3 171>210:3 through 171>231:3	Program the OAI pilot (299) and the voice ports (208 - 231) as monitored numbers.
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
172>299:NONE-00	Set the 299 as member of the Group 00 (other than any other UCD group - 01)
D70>F1032>NONE-192 D70>F1033>NONE-193 D70>F1034>NONE-194 D70>F1035>NONE-195	Assign Terminal Mode Facility (TMF) codes to OAI monitored function keys; the available OAI monitored function keys are in the range of F1032-F1047 (16 keys); the available TMF codes are in the range of 192-255;
9000>201,09>F1032 9000>201,10>F1033 9000>201,11>F1034 9000>201,12>F1035	Assign the function codes F1032-F1035 to DTerm function keys 09-12, for extension 201; For the ',' (comma) press the < <b>Transfer</b> > button;
08>045>0	Executive Override beep: 0 = play only one beep on initiation 1 = beep every 4 seconds
08>046>0	Executive Override beep: 0 = disable Executive Override beep 1 = enable Executive Override beep
Backup/Save	EC6>0>3 = idle 0 = start backup (and wait for flashing to complete)
Reset CP24 (SW1)	Update changes



## To set the UCD hunt group configuration

### IMPORTANT

Only adjust the UCD hunt group settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

**1 Verify that the UCD group is set to: 220-223.**

**2 Verify that the UCD pilot is set to: 220.**

Command	Description
170>220:NONE-221	Set up the 220-223 range as a UCD hunt group.
170>221:NONE-222	
170>222:NONE-223	
170>223:NONE-220	
172>220:NONE-01	Set the 220-223 range as part of Group 01, other than the OAI group (00) of the monitored number(s).
172>221:NONE-01	
172>222:NONE-01	
172>223:NONE-01	
171>220:0-1	Set extension 220 to be the UCD pilot (master).
1310>220:0	Set the 220-223 range as messaging system (VMS) stations (for MCI / J-records appearance).
1310>221:0	
1310>222:0	
1310>223:0	

## To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following settings or that the configuration files are updated.

**1 The OAI LiveRecord feature uses the following settings by default.**

### WARNING!

If these defaults are changed, the corresponding settings in the OAI Integration Server must be set up accordingly by editing the XML configuration file.

Dterm Function Key	Function Code	Terminal Mode Facility (TMF) Code	LiveRecord Function
09	F1032	192	Record
10	F1033	193	Pause/Resume
11	F1034	194	Re-record
12	F1035	195	End

**2** When using LiveRecord, the monitored extensions or voice ports are allowed to use Executive-Override with the LiveRecord feature. Normally, the OAI monitoring is set by CMD17,Y=1, Extension>3, but this value will automatically activate the Off-Hook Suppress bit. Instead, the UNDOCUMENTED value of 4 that will take the Off-Hook Suppress OFF is used.

**3** The Executive Override code programmed on the command 200>A4>A006, for example, should match the BargeInCode parameter setting in the UNIVERGE UM8500 integration file. In this case the code is \*4 and the UM8500 entry is BargeInCode = X,&,\*4.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To select the INI file

- 1 Shut down UNIVERGE UM8500 before setting the following parameters.
- 2 Click **Start > Programs > UNIVERGE UM8500 group > Edit Switch Utility**.

Ensure that the current phone system settings are correct according to the phone system version and port types.

### NOTE

The settings below apply to NEAX 2000 IVS/IVS2 or IPS.

## Phone settings for OAI integrations with analog or T1 ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2000 IVS
Specific version or country	All with analog boards and OAI
Integration method	OAI

## Phone settings for OAI integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2000 IVS
Specific version or country	1300 series and above with digital boards and OAI
Integration method	OAI

## Phone settings for OAI integrations with IP ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2000 IPS
Specific version or country	Software release 8 or newer with OP ports
Integration method	OAI

- 3 If the current settings are not correct, select the correct ones and then click **Edit this switch configuration**. Write down the name of the ini file that is listed in the title bar. Click **OK** to close this window.
- 4 Click **Update Voice Mail Now** to apply the changes and close Edit Switch utility.

## To update the INI file

- 1 Using Windows Explorer on the UNIVERGE UM8500 server, go to the CommServer\IntLib directory.
- 2 Use a text editor to open the corresponding configuration INI file noted in the previous procedure.
- 3 In the [Configuration] section, modify the NetIP1 value:
  - Replace the NetIPI with the exact IP address that the computer is using to access the same LAN as the phone system. For example:  
NetIP1=172.16.19.191.

- The NetIP1 = the IP address of the computer where UNIVERGE UM8500 is installed; the default value is set to "localhost" but it should be changed because it is possible for the server machine to have more than one network interface.

4 Click **File > Save**, and then close the configuration INI file.

# Installing the OAI Integration Server software

Before configuring the OAI integration, the OAI integration software must be installed on the computer where the messaging system is installed.

## To install the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration folder on the disc.
- 4 Click setup.exe, then click **Open**.
- 5 In the Run dialog box, click **OK**. The installation wizard begins.
- 6 On the Welcome page, click **Next**.
- 7 On the Customer Information page; if the **User Name** and **Customer Name** fields do not have your information, enter your information into the fields. Select an option indicating whether or not you or anyone else who uses the computer has access to the program. Click **Next**.
- 8 On the Setup Type page, confirm that **Typical** is selected, then click **Next**.
- 9 On the Start Copying Files page, click **Next**.
- 10 When setup is complete, click **Finish**.

A new Program Group, Active Voice, is added to the program list. Two new applications are added to this program group: AvOAIGear and AvOAITray. These applications are used to set up the OAI integration parameters.

## To choose a predefined template for the integration in the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration\OAI Server XML Templates\Single Server folder on the disc. This will show a group of folders that contain predefined sets of XML configuration files meant to help choose the best OAI configuration.

Open the appropriate folder for the integration.

- For NEAX 2000 IVS/IVS2 phone systems using OAI pure integration, open the **NEC 2000 IVS - OAI Pure - No CCIS** folder.
  - For NEAX 2000 IPS phone systems using OAI pure integration, open the **NEC IPS 2000 - OAI Pure - No CCIS** folder.
  - For NEAX 2000 IVS/IVS2 phone systems using OAI UCD - Serial MCI integration, open the **NEC 2000 IVS - OAI-UCD - MCI** folder.
  - For NEAX 2000 IPS phone systems using OAI UCD - Serial MCI integration, open the **NEC IPS 2000 - OAI-UCD - MCI** folder.
- 4 From the selected folder, copy and replace the existing AvOAISvr.xml file to the **Program Files\Active Voice\OAI Integration** folder on the UM8500 server.

The Program Files folder is usually found on the partition where Microsoft Windows was first installed, for example: C:\Program Files\Active Voice\OAIIntegration.

# Configuring the OAI Integration Server

Modify the configuration file to set how calls are handled in the integration.

## To configure the OAI Integration Server

- 1 From the Windows taskbar, click **Start > All Programs > Active Voice > OAI Integration > AVOAI Tray**.

The OAI icon appears in the notification area of the system tray.

- 2 Right-click the OAI icon, then click **Advanced**.

The OAI Gear page appears.

### WARNING!

If an error message appears indicating the service is not installed, close the error dialog box and continue with this procedure. The AV OAI Integration service will automatically install after the procedure is completed.

- 3 On the OAI Gear toolbar, click the **Configuration File** icon.

The configuration file for the OAI parameters appears in an XML editor.

- 4 In the navigation pane of the configuration file, expand CallPilot1 to configure the CallPilot.

In the navigation pane, under the CallPilot object, there are some predefined values for all parameters. Depending on the template chosen, set the following values:

**PBX-IP:** Enter the IP address of the phone system, or if the phone system is connected to the same LAN as the UM8500 server through a different network interface card, enter the IP address of the network interface card. The default value is only an example.

**PBX-Port:** Enter the OAI monitoring port of the phone system. Depending on the template previously chosen, the default value will be 1024 for a NEC 2000 IVS or IVS2 or 60030 for a NEC IPS 2000 phone system. Modify the default value only if you know that the phone system is set to a different value.

**Tenant:** PBX Tenant where the OAI pilot or AMNO number is defined physically. If the integration is MCI based, this will be the tenant number where the UCD is configured. This value should match the one in the phone system configuration. The default value is 1.

**Extension:** If one of the templates that enables an OAI UCD - MCI Serial integration, such as NEC IPS 2000 - OAI-UCD - MCI or NEC 2000 IVS - OAI-UCD - MCI, was selected, this field can be left blank according to the predefined settings.

If one of the templates that enables an OAI pure integration, such as NEC 2000 IVS - OAI Pure - No CCIS or NEC IPS 2000 - OAI Pure - No CCIS, was selected, then enter the CallPilot's OAI monitored extension. If the extension is a virtual number associated with the auto attendant, this will be the monitored number that is called to access the voice messaging system. The default value is just an example.

Leave all other parameters on their default values.

- 5 If the system is using the Live Record feature, in the navigation pane of the configuration file, expand the LiveRecord node, and set the following parameters:

### NOTE

Skip this step if the system is not using the Live Record feature.

The OAI Live Record feature allows users to make real-time recordings of their own conversations. The values under this section must be configured to match the phone system settings of the phones used.

**Enabled:** This Enables/Disables the Live Record functionality. The default value is True.

**TMFC-Record:** Enter the Terminal Mode Function Code for the Record command for Live Record. The default value is 192 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-Pause:** Enter the Terminal Mode Function Code for the Pause command for the Live Record. The default value is 193 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-ReRecord:** Enter the Terminal Mode Function Code for the ReRecord command for Live Record. The default value is 194 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-End:** Enter the Terminal Mode Function Code for the End command for Live Record. The default value is 195 as this is the predefined function in the phone system, but can be changed if needed.

**KC-Record:** Enter the OAI Key Code used for the Record command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 1.

**KC-Pause:** Enter the OAI Key Code used for the Pause/Resume command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 2.

**KC-Rerecord:** Enter the OAI Key Code used for the ReRecord command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 3.

**KC-End:** Enter the OAI Key Code used for the End command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 4.

**ToggleStartStop:** This feature allows the user to press a single key to start, stop, or restart a Live Record session. To enable the feature, enter True. To disable the feature, enter False. The default value is True.

- 6 If using a template that enables the OAI UCD-MCI serial integration, in the navigation panel of the configuration file, expand the MCI-Serial node.

#### NOTE

Do not complete this step if a template other than the NEC IPS 2000 OAI-UCD-MCI template or the NEC 2000 IVS-OAI-UCD-MCI template was selected.

The settings must match the settings of the phone system for the MCI Serial connection.

**Format:** Set the format of the MCI-Serial packets expected from the phone system. Enter **ICS** for regular (ICS/IVS) serial packets, or **IMX** for expanded (IMX) packets. The default is ICS.

**COMPort:** Enter the COM number of the serial port. This is the voice server serial port that is connected by the RS-232 cable to the MCI link on the phone system. Accepted values are **COM1** or **COM2**. The default is COM1.

**BaudRate:** Enter the baud rate used by the serial (RS-232/MCI) communication. The value must be identical to the phone system setting. Accepted values are **1200**, **2400**, **4800**, **9600**, or the specially defined phone system setting. The default value is 9600.

**DataBits:** Enter the default phone system data bits. Accepted values are **4**, **5**, **6**, **7**, or **8**. The default value is 8.

**Parity:** Enter the parity used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **N** for NONE, **E** for EVEN, or **O** for ODD. The default value is N.

**StopBits:** Enter the stop bits used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **1**, **1.5**, **2**, or the specially defined phone system setting. The default value is 1.

Leave all other parameters not listed above at their default values.

**7** In the navigation pane of the configuration file, expand VMSystem1 node.

Set the following parameters to configure the VMSystem1 node:

**Host:** Enter the IP address of the monitored UM8500 server. This will be the same IP address entered previously in the configuration ini file. The default value is just an IP example.

**PortRange:** Enter the port or range of ports for the phone system tenant hosting the voice mail ports. Ports can be set by entering a single port number, for example x x x x; a range of numbers, for example x x x x – x x x x; or a combination or both, for example x x x x – x x x x , x. The default ports are just an example.

**Tenant:** Enter the phone system tenant number where the voice mail ports are set. The default value is 1.

Leave all other parameters not listed above at their default values.

**8** Click **File > Save** to save the XML configuration file.

**9** Install the OAI service and test the integration. See [“Installing and starting the OAI service” on page 134](#).

# Installing and starting the OAI service

After saving the configuration file, install the OAI service then test the service to ensure a successful integration.

## To install the OAI Service

- 1 On the OAI Gear page, click the Install Service icon, or from the Service menu, click **Install Service**.
- 2 On the AV OAI Voice Mail Integration Server - Install Service dialog box, select the **This account** option.
- 3 Enter the domain Administrator name, type and confirm the domain Administrator password for the domain, then click **OK**.

### NOTE

It is recommended that the same domain administrator account that was used to install the messaging system software is entered. The Administrator name might need to be prefaced with the domain. For example, <domain name>\Administrator. You can also choose to install the OAI Service under a Local System account, or even a different domain account, but this can cause difficulties when troubleshooting any subsequent integration problems.

- 4 From the Windows taskbar, click **Start > All Programs > Administrative Tools > Services**.

The Services MMC snap-in appears.

- 5 In the details pane, confirm that the AV OAI Integration Server service is listed.
- 6 Right-click **AV OAI Integration Server**, then click **Properties**.
- 7 On the General tab, ensure that the Startup type is **Automatic**.
- 8 Click the Recovery tab and then do the following:
  - Ensure that **Restart the Service** is selected for each failure attempt.
  - Enter 1 in the **Restart service after** field.
- 9 Click **OK** to exit the AV OAI Voice Mail Integration Server Properties dialog box.
- 10 Start the OAI Integration server using either of the following methods:
  - In the **Services MMC snap-in**, right-click **AV OAI Integration Server**, then click **Start**, or
  - Right-click the **AV OAI Server** in the notification area, and then click **Start service**.

The icon changes from stop to start.

## Testing the OAI integration

After installing the service and setting up the parameters, test the integration to ensure that it works correctly.

## To test the OAI Integration Server

- 1 Place a direct call to the voice mail pilot number and confirm that is answering. Use a voice mail subscriber extension with a valid phone extension to place a call to the voice mail pilot number. You should hear: "Please Enter Your Password."
- 2 Leave a voice message for a test user that has an actual phone extension.
  - Confirm that the message indicator for the extension is on. This verifies that the MWI section of the configuration file was set properly.



- If the Message Count field in the MWI-OAI node of the configuration file was set to True, confirm that the message count is listed.
- 3 Retrieve the voice message and confirm that the message waiting indicator turns off and the phone display clears.



# ■ NEC NEAX 2400 with Direct Digital

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 140.
- 3 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 141.

## Requirements

The steps to set up the NEC NEAX<sup>®</sup>2400 direct digital integration require the following:

### Phone system

- NEAX 2400 IMS, revision HDS 5200 R4 or later, installed and ready for the integration as described in the phone system documentation.
- One or more of the following digital line cards set up as voice messaging ports connected to the voice boards in the messaging system server:

Card name	Description
16ELCH (with SP-3125)	Digital line card, 16 ports
16ELCJ	Digital line card, 16 ports
16ELCJ-B	Digital line card, 16 ports
16ELCJB-A	Digital line card, 16 ports

#### CAUTION

Use only the black and yellow pair of wires. The RJ-14 connectors on the Dialogic D42-NE2 voice board use only a single pair of wires.

### UNIVERGE UM8500 server

- The Dialogic digital voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

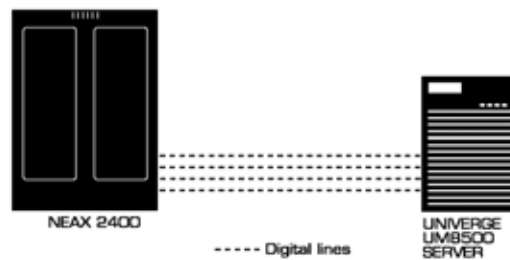
For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

The NEAX 2400 direct digital integration uses digital lines to connect the phone system and messaging system server. The phone system digital voice messaging ports connect to the D42-NE2 boards in the messaging system server. Each D42-NE2 voice board emulates up to four Dterm<sup>®</sup> digital phones. The following illustration shows the required connections.



The phone system sends the following information with forwarded calls:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The NEAX 2400 direct digital integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook<sup>®</sup> or other desktop messaging application.
- **Constant message count.** The number of new messages is displayed on a subscriber's Dterm phone while the phone is on hook.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch software version	HDS R4 and later without MCI
Integration	Direct Digital

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Programming the phone system

If programming options other than those described in the following procedures are used, the integration's performance can be affected.

## NOTE

The following procedures are written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## To program the digital voice messaging ports in the phone system

- 1 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports by using the ASFC command. It is recommended that all of the voice messaging ports be placed in a single SFC not used for any other purpose. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of **26** to the Telephone Equipment Class (TEC) for each voice messaging port by using the ASDT command. Use the SFC created for the voice messaging ports in step 1.
- 3 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group.

If the number of voice messaging system ports exceeds the number of supported ports in a UCD group, specify additional UCD groups, then link them together using the AUOG command.

## NOTE

Software versions 7200 or later support up to 100 ports in a UCD group while software versions earlier than 7200 support up to 20 ports in a UCD group.

- 4 Program each phone to forward calls to the UCD pilot number assigned to the voice messaging ports, based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy; or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when the extension is busy.

## CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 5 Use the programming system data table to program the ASYD settings. Each bit is part of a hexadecimal number displayed in the ASYD settings. Convert the hexadecimal number to binary to determine the individual settings. For more information, refer to the *NEAX 2400 Office Data Specification*.

#### Programming system data

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Calling station status display enabled
	238	b0–7	0	Lamp flash rate

#### To program the Dterm phones that use Live Record

For each Dterm phone that uses the UNIVERGE UM8500 Live Record feature, perform the following steps:

- 1 Assign an SFI of **118** by using the ASFC command.
- 2 Assign the extension to the UCD pilot number of the voice messaging ports by using the AVPS command.
- 3 Designate the following function key assignments by using the AKYD command:

Function key number	Function
66	Record
67	Re-record
68	Pause
69	End



# ■ NEC NEAX 2400 with IP Protims

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all equipment, phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.
- 2 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 146.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 147.

## Requirements

The steps to set up the NEC NEAX 2400 IP Protims integration require the following:

### Equipment

- All Dterm<sup>®</sup> IP phones that will be used with UNIVERGE UM8500 must have software version 1.2 or newer.

### NEAX 2400 phone system

- A NEAX 2400 IMX software version 16 or newer or SV7000, model T10 or T20, installed and ready for the integration as described in the phone system documentation.
- Password encryption type for IP extensions is MD5, see command ASYDL, index 848, b7=0.
- Fully functional IP PAD cards with VCTI sub-boards.

#### NOTE

IP PAD cards provide interface function between IP telephony, terminals or other devices on LAN, and non-IP telephony, conventional networks such as PSTN, ISDN, and private networks. If the telephony network is 100% IP, the IP PAD cards are not mandatory.

### UNIVERGE UM8500 server

- If the G729 codec is used, the Sipro Lab G729 codec driver must be installed in the voice mail server. The installation file for this driver is named `sl_g729a_setup.exe` and can be found in the Voice Mail\Utilities folder on the *Installation* disc.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

NEAX 2400 IP Protims integration uses a network connection to connect messaging system server with the phone system. Each voice messaging port emulates an IP-VPS extension. The communication between the parties is facilitated by a series of Voice over IP (VOIP) protocols, such as DRS, Protims, RTP, H245, Voice control, used for call signaling and voice streaming, some of them being NEC proprietary protocols.

### Integration features

The NEAX 2400 IP Protims integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

If programming options other than those described in the following procedures are used, the integration's performance might be affected.

## NOTE

The following procedures are written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## To program the IP voice messaging ports in the phone system

- 1 Make sure that the NEAX 2400 phone system has licenses for using IP extensions by using the DPTR command.
- 2 Configure the voice messaging ports as IP-VPS extensions by using the AISTL command to set "KIND = IP VPS" and "TEC = 26."

Assign the ports successive VPS channels, starting with "IP VPS CH = 0."

- 3 Write down the VPS ID value of the voice messaging ports, for use during the UM8500 installation. Enter the value when the UNIVERGE UM8500 installation wizard asks for this value.

## CAUTION

All voice messaging ports must have the same value assigned for VPS ID.

- 4 Write down the MWI analog codes that the NEAX 2400 phone system uses for turning the phones lamps on and off. These codes are needed when configuring UM8500 to work with the integration.

## NOTE

The NEAX 2400 phone system may not have any settings made to use codes for MWI analog operations. If this is the case, use the ANPD and ASPA commands to set "SRV=SSCA" and "SIDA=54 / 55."

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports by using the ASFC command. It is recommended that all of the voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using the ASHU command.
- 7 Set the same location ID for all voice messaging ports and set either or both of the codecs G711, U-Law or A-Law, and G729A with payload size equal to 40 milliseconds for that location ID using the commands ALOCL and AIVCL.

## NOTE

To associate the voice messaging ports with a specific location, add the IP address of the messaging system server to that location.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **IP Protims**.
- 4 If the setting is not **IP Protims**, contact a sales representative for the necessary system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, integration features might not be enabled.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch Software Version	Software Release 16 or newer with IP ports and display like DTERM_E Software Release 16 or newer with IP ports and display like DTERM_III
Integration	VOIP-Protims

#### NOTE

The software version used depends on the phone system settings. Check the parameter ASYDL 672. If bit b1=1, the software version must be "Software Release 16 or newer with IP ports and display like DTERM\_E". Otherwise, the software version must be "Software Release 16 or newer with IP ports and display like DTERM\_III".

- 6 Enter the MWI analog codes that the NEAX 2400 phone system uses for turning the phones lamps on and off. Save the changes.
- 7 Stop UNIVERGE UM8500.
- 8 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 9 Enter IP address of the phone system.
- 10 Set the general functionality for the ports as VPS and enter the VPS number.
- 11 Under Manage ports, click **Add** to add a new port.
  - Enter the Extension, Password, and VPS channel for each port.
- 12 If the system uses one or more IP PADs, under Manage Gateways click **Add**.
  - Enter the IP Address and set the Has DSP to 0 for each gateway.
- 13 Click **OK** to save the changes and then close VOIPAdmin.
- 14 Start UNIVERGE UM8500.
- 15 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).

- 16 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page. If the extensions are incorrect, stop UM8500, verify the PBX settings made for the voice messaging ports, see [“To program the IP voice messaging ports in the phone system” on page 146](#), and use the VOIPAdmin tool to make the necessary adjustments.

# ■ NEC NEAX 2400 with serial MCI

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.
- 2 If the system uses T1 voice messaging ports, set up the digital trunk interface board.**  
See [“Setting up the trunk board”](#) on page 153.
- 3 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 155.
- 4 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 159.
- 5 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, [“Testing the extensions”](#) on page 338.
- 6 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, [“Learning phone system tones”](#) on page 340.

## Requirements

The steps to set up the NEC NEAX<sup>®</sup> 2400 Message Center Interface (MCI) integration with a serial interface require the following:

### Phone system

- One of the following NEAX 2400 phone systems with MCI:

Port system	Software version
IMX	All software version
IMG and SIM	5200 or later
MMG and UMG	4200 version 5 or later
T1	One digital trunk interface board (card number PA-24DTR/DLI) with program version SP3298 3A 001 or later for each group of 24 voice messaging ports.

#### NOTE

IMG and SIM phone systems might require upgrading to a high-density system to support MCI.

- One IOC serial port for the MCI data link connected to a serial port, COM1 is the default, on the voice mail server with a PH-68 two-port cable and an RS-232C CA-1 cable.
- MCI feature II installed according to NEC document *ETI No. 121A (October 1998)* and the *NEAX 2400 IMX Message Center Interface (MCI) Specifications, ND-70428(E) Issue 1 (January 1999), NEC #200892*.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Analog	One analog station port for each voice messaging port.
T1	One digital trunk interface board (card number PA-24DTR/DLI) with program version SP3298 3A 001 or later for each group of 24 voice messaging ports.



Port type	Description
Digital	One digital station port for each voice messaging port.
IP-VPS	One IP-VPS port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port.

- For the UM8500 release-to-switch call transfer type, one of the following versions of the NEAX 2400 phone system software:

Port system	Software version
IMX	All versions, with blind transfer to the attendant and to the station
IMG and SIM	5200 or later, with blind transfer to the attendant and to the station
MMG and UMG	5200 or later, with blind transfer to the attendant and to the station
T1	One digital trunk interface board (card number PA-24DTR/DLI) with program version SP3298 3A 001 or later for each group of 24 voice messaging ports.

#### NOTE

If the phone system does not support the release-to-switch transfer type, see [“Transferring calls on phone systems without blind transfer” on page 161](#).

### UNIVERGE UM8500 server

- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

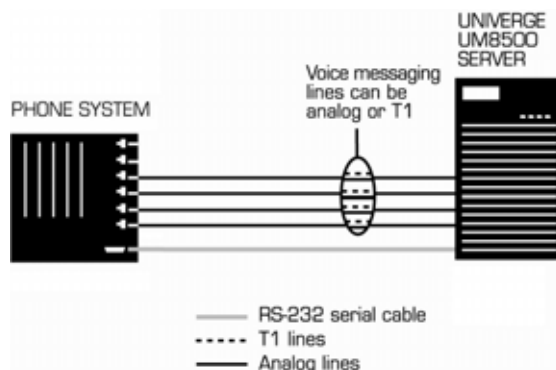
For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- An available serial port, COM1 is the default.

## Integration description

### How the integration works

The NEAX 2400 serial MCI integration uses a data link, which consists of an RS-232 serial cable connecting the phone system IOC port to the voice mail server. The phone system voice messaging lines connect to the analog, digital, or T1 voice boards in the voice mail server or using the LAN in case of IP-VPS or IP terminal ports. The following illustration shows the required connections.



The phone system sends the following information through the data link:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The NEC NEAX 2400 serial MCI integration with UM8500 provides the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.

**Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Setting up the trunk board

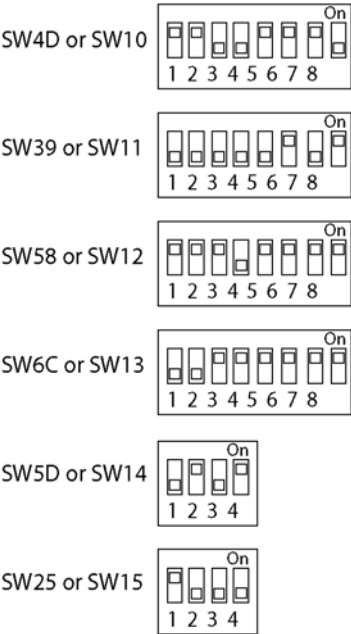
If the phone system uses a T1 line to connect to UM8500, confirm that the trunk board firmware version is correct, and set the DIP switches before programming the phone system.

## To confirm the trunk board firmware version

- 1 Remove the trunk board from the phone system.
- 2 Locate the removable, integrated circuit (PROM) with a white label. This PROM contains the trunk board program, or firmware. The relative location of the PROM may vary, but it is the only PROM with a white label on the trunk board.
- 3 Confirm that the firmware version printed on the label is “SP-3298 3A 001” or later. If the version is incorrect, update the firmware by replacing the PROM or the trunk board.

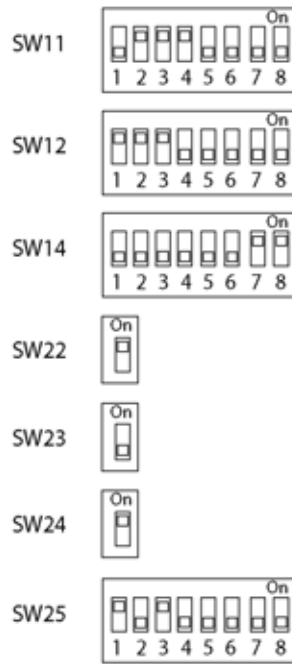
## To set the trunk board switches

- 1 Set the switches for the trunk board as shown below:
  - For a 24DTR/DLI trunk board.



See also  
NEAX 2400 IMX Circuit Card Manual

- For a SPADLIC A trunk board.



SW10, SW13, SW15,  
SW16, SW17, SW18,  
SW19, SW20, SW21, All switches off.  
SW26, SW27, SW28

# Programming the phone system

Perform the following procedure to program the phone system for the integration. Using programming options other than those described in the following procedure can affect system performance.

## NOTE

The following procedure is written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## Programming the phone system steps

### 1 Program the voice messaging ports. The procedure used depends on the port type the system is using.

- For analog ports, see [“To program the analog ports” on page 155.](#)
- For T1 ports, see [“To program the T1 ports” on page 155.](#)
- For digital ports, see [“To program the digital ports” on page 155.](#)
- For IP-VPS ports, see [“To program the IP-VPS ports” on page 156.](#)
- For IP Terminal ports, see [“To program the IP Terminal ports” on page 156.](#)

### 2 Program the phone system

Complete programming the phone system. See [“To complete programming the phone system” on page 157.](#)

## To program the analog ports

- 1 Assign all voice messaging ports to a UCD group.
- 2 Complete programming the phone system. See [“To complete programming the phone system” on page 157.](#)

## To program the T1 ports

- 1 Assign each line circuit an extension number, then add each of the numbers to the UCD group.
- 2 Complete programming the phone system. See [“To complete programming the phone system” on page 157.](#)

## To program the digital ports

- 1 Specify a Service Feature Restriction Class (SFC) for all voice messaging ports using the ASFC command.

The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of **26** to the Telephony Equipment Class (TEC) for each voice messaging port using the ASDT command. Use the SFC previously created.
- 3 Assign all voice messaging ports to a UCD group.
- 4 Complete programming the phone system. See [“To complete programming the phone system” on page 157.](#)

## To program the IP-VPS ports

- 1 Make sure that the NEAX 2400 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP-VPS extensions using AISTL command, KIND=IP VPS, TEC = 26.
- 3 Assign them successive VPS channels, starting with IP VPS CH= 0.
- 4 Write down the VPS ID value of the voice messaging ports, so the value is available when the UNIVERGE UM8500 installation wizard asks for it.

### CAUTION

- All voice messaging ports must have the same value assigned for VPS ID.
- Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using ASHU command.

### NOTE

If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the ALGSN, ASHUN commands.

### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 7 Complete programming the phone system. See [“To complete programming the phone system” on page 157](#).

## To program the IP Terminal ports

- 1 Make sure that the NEAX 2400 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP Terminal extensions using the AISTL command, KIND=IP DTERM, TEC = 12.
- 3 Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.

- 4 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 5 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group (see command ASHU).

#### NOTES

- Logical numbers appear only in a NEC Fusion network and are used to uniquely identify all the extensions in the network.
- If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the commands ALGSN, ASHUN.

#### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 6 Complete programming the phone system. See [“To complete programming the phone system” on page 157](#).

### To complete programming the phone system

- 1 Program each phone to forward calls to the UCD pilot number assigned to the voice messaging system ports, based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy;
- or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when the extension is busy.

- 2 Set up the RS-232 serial data port for AIOC settings as follows:
  - 9600 baud
  - 8 data bits
  - 1 stop bit
  - No parity
- 3 If a remote maintenance modem is used, program the modem line for data line security.
- 4 Use the AUCD command to program the phone system to send UCD call information to MCI. Assign a value of 0 to the **MCI Data Transfer** field for the appropriate tenant and UCD pilot numbers.
- 5 Use the programming system data table to program the ASYD settings. Each bit is part of a hexadecimal number displayed in the ASYD settings. Convert the hexadecimal number to binary to determine the individual settings.

- 6 Use the programming system data local data table to program the ASYDL settings. Each bit is part of a hexadecimal number displayed in the ASYDL settings. Convert the hexadecimal number to binary to determine the individual settings.

#### Programming system data

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
		b5	1	MWI controlled by MCI
	29	b1–7	0/1	No/Yes: Assign I/O port for MCI output Port 1 = b1, port 2 = b2, and so on
	34	b1–4	0	Set output to no parity and 1 stop bit
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Called station status display enabled
	238	b0–7	0	Lamp flash rate
	246	b3	0	MCI expansion set to normal
	400	b2	1	Calling number information sent to MCI
2	6	b0	1	MCI in service when terminating to a UCD group
	7	b1	0	MCI out of service when terminating to attendant console

#### Programming system data local data

System	Index	Bit	Value	Description
1	641	b1	0/1	0/1: MCI/IMX station number/phone number
	832	b0–7	00–FD	Assign the FPC of the node connected to MC
	833	b0	0	IOC serial interface enabled for MCI
		b1	0	0/1: ICS/IMX format



# Configuring UNIVERGE UM8500 for the integration

After ensuring that the voice mail server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### Phone system settings for integrations with analog ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch PBX software version	4203 and later with analog boards and MCI
Integration	Serial

### Phone system settings for integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Integration	NEAX2400 IMS
Switch PBX software version	4203 and later with digital boards and MCI
Integration	Serial

### Phone system settings with T1 ports

Parameter	Required setting
Manufacturer	NEC
Integration	NEAX2400 IMS
Switch PBX software version	4203 and later with T1 boards and MCI
Integration	Serial

### Phone system settings with IP Terminal or IP-VPS ports

Parameter	Required setting
Manufacturer	NEC
Integration	NEAX2400 IMS
Switch PBX software version	Software release 16 or later with IP ports
Integration	Serial

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## Configuring UNIVERGE UM8500 ports

Configure the UM8500 voice ports. The procedure used depends on the port type the system is using.

- For IP-VPS or IP Terminal ports, see [“To configure IP-VPS or IP Terminal ports” on page 160](#).

- For analog, T1, or digital ports, see [“To configure Analog, T1 or Digital ports” on page 160.](#)

### To configure IP-VPS or IP Terminal ports

- 1 Stop the UNIVERGE UM8500.
- 2 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 3 Enter the PBX IP address.
- 4 Set the general functionality for the ports (VPS or Terminal.)  
If the system has VPS ports, enter the **VPS Number**.
- 5 Under Manage ports, click **Add** to add a new port.  
Enter the **Extension** and **Password** for each port.  
If the system has VPS ports, enter the VPS Channel for each port.
- 6 If the system uses one or more IP PADs, under Manage Gateways, click **Add**.  
Enter the **IP Address** and set the **Has DSP** to 0 for each gateway.
- 7 Click **OK** to save the changes and then close VOIPAdmin.
- 8 Restart UNIVERGE UM8500.

### To configure Analog, T1 or Digital ports

- 1 Make sure that UNIVERGE UM8500 is running.
- 2 In Internet Explorer, go to the UM8500 Administrator  
`http://<server name>/saweb`
- 3 Go to **System > Ports**. Type the extension of each port. These extensions must be introduced as station numbers, not logical numbers and without the office codes, if they have any. Save the changes.

## Transferring calls on phone systems without blind transfer

Phone systems without blind transfer do not support the UM8500 release-to-switch call transfer type. Because of this, the phone system will not forward calls to UM8500 when certain conditions are met, instead the phone system returns the call to the extension originally called. Calls that the operator transferred appear on the console as “Recall” when they return.

The phone system will not forward calls to UM8500 when all of the following conditions are met:

- The phone system does not support blind transfers to the attendant console and blind transfers to the stations.
- The phone system is set to forward unanswered calls.
- A call is transferred from an extension to another that does not answer.



# ■ NEC NEAX 2400 with OAI

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# Integration overview

UNIVERGE UM8500 uses the Open Application Interface (OAI) to integrate with NEC phone systems using a TCP/IP link between the messaging system server and the phone system. OAI Integration can be used with digital, analog, T1, or IP lines and requires that the OAI Integration server is installed.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.
- 2 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 167.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 170.
- 4 Install the OAI Integration Server software.**  
See [“Installing the OAI Integration Server software”](#) on page 172.
- 5 Configure the OAI Integration Server.**  
See [“Configuring the OAI Integration Server”](#) on page 173.
- 6 Install and start the OAI service.**  
See [“Configuring the OAI Integration Server”](#) on page 173.

## Requirements

The steps to set up the NEC NEAX 2400 with OAI integration require the following:

### Phone System

- A NEAX 2400 IMX or IPX phone system.
- A network connection to the voice mail server.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Analog	One analog station port for each voice messaging port.
T1	One digital line interface card for each group of 24 voice messaging ports.
Digital	One digital station port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port (TEC12).
IP-VPS	One IP-VPS port for each voice messaging port (TEC26).

### UNIVERGE UM8500 server

- A network connection with the phone system. A second network card on the messaging system server to connect directly to the phone system is recommended.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

- For the latest information on supported voice boards for UM8500, contact a sales representative.
- No voice boards are required if IP-VPS or IP Terminal ports are used.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- OAI Integration server installed.
- A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

The UNIVERGE UM8500 unified messaging solution can use the Open Application Interface (OAI) to integrate with the NEC phone system, such as the NEAX 2400 IMX/ICS/IPX. The OAI integration is established over a TCP/IP link between the UNIVERGE UM8500 and the NEC phone system.

## How the integration works

There are two basic types of OAI integrations:

- **OAI pure integration.** This type of integration uses only the TCP/IP link to connect to the phone system. It has an OAI monitoring slot opened with the phone system and dispatches calls to the enabled voice messaging systems. This type of OAI Integration provides the most efficient load balancing capability by dispatching new incoming calls from a monitored number or the voice mail pilot to free voice mail ports.
- **OAI UCD - LAN/Serial MCI integration.** The OAI Integration Server uses complementary Message Center Interface (MCI) integration capabilities using either the serial or TCP/IP interface. The complementary MCI integration feature of the OAI Integration Server is not a genuine OAI integration. The integration does work in Common Channel Interoffice Signaling (CCIS) networked environments between multiple NEC phone systems, when the remote phone systems do not have OAI or their software revision does not feature call-forwarding information in the OAI layer. The MCI link is used as complementary integration support for situations where the OAI layer does not provide full integration, such as in older, legacy phone system environments.

## Integration features

The NEAX 2400 OAI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.



# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration performance might be affected.

The steps used to program the phone system depends on the phone system being used.

## NOTE

The following procedures are written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## To set up the NEAX 2400 IMX, ICS or IPX

- 1 Use the following table to configure the phone system OAI settings for integration.

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYD	1	4	4	1	59	Enable RCS Check from OAI
	1	17	0	1	15	Enable switch while ringing
	1	19	5	1	20	0 = Enable ETF, 1 = Disable ETF
	1	27	4	0	00	0 = Enable MCI, CCIS, ISDN, MW, 1 = Disable MCI, CCIS, ISDN, MW
	1	27	6	0	00	0 = Enable OAI, 1 = Enable OAI
	1	31	2	1	06	CM Page (Name Display)
	1	63	6	1	C1	Enable Call Fwd detail in STS SMFN
	1	63	7	0/1	C1	0 = External OAI, 1 = Internal OAI
	1	79	6	0	00	0 = Enable OAI/ACD services, 1 = Disable OAI/ACD services
	1	80	2	1	04	0 = Clear OAI display, 1 = Leave OAI display
	1	86	6	0	93	0 = English, 1 = Japan
	1	186	0	1	61	Enable CCIS link-reconnect
	1	241	2	1	0E	LP sends SMFNs to IP
	1	241	3	1	00	Enable detail error codes
	1	299	2	0	00	Must be 0
	1	370	0	1	01	Enable expanded SMFN
	1	439	0	1	01	Enable Call Fwd info over CCIS
	1	449	3	1	08	0 = Hex ANI data for ISDN trunk, 1 = /ASCII data for ISDN trunk
	2	2	5	1	2B	Enable loop release
ASYDL	1	864	0	1	11	Internal IP/ACDP in Service (SVI 1758) 0 = No, 1 = Yes
	1	864	4	1	11	Maximum number of SMFN Output port (SVI 1792) 0 = 2 Ports, 1 = * Ports (normal)

Cmd	Sys	Index	Bit	Value	Sample	Description
RSVI		SVI 1650		1	1	Call Fwd status for answer SMFN
		SVI 1755		1	1	Call Fwd reason enhancement (over CCIS)
		SVI 1760		1	1	Release SMFN enhancement

- 2 Use the following table to configure the OAI pilot number. The OAI pilot number is used to dispatch calls to the voice mail ports, similar to the voice mail pilot number.

#### NOTE

This setting is not required for the OAI UCD-LAN/Serial MCI integration.

Command (Description)	Parameter	Value
AMNO (Assignment of Monitored Number)	A/G	A
	TN	1
	MNO	299
	NMI	1
	MFC	0
	UCD	0

- 3 If using the OAI UCD-LAN/Serial MCI integration, use the following table to configure the Message Center Interface (MCI). If using an OAI pure integration, skip this step.

#### NOTES

- MCI cannot be active on both serial and LAN interfaces at the same time. If possible, enable MCI over LAN for the best system performance.
- The same settings must be enabled in the OAI Server software.
- Do not adjust MCI settings if using an OAI pure integration.

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYDL	1	833	0	1	03	MCI type: 0 = IOC (Input-Output Card) serial 1 = LAN
	1	833	1	1	03	MCI text format: 0 = ICS 1 = IMX
	1	834	0	1	03	MCI 0 LAN Interface in service: 0 = No 1 = Yes
	1	834	1	1	03	MCI 1 LAN Interface in service: 0 = No 1 = Yes
ASYD	1	246	3	1	08	MCI Expansion: 0 = Normal 1 = Expanded
	1	400	2	1	04	Expanded MCI with ANI Data: 0 = No 1 = Yes

- 4 If using the OAI UCD-LAN/Serial MCI integration, use the following table to set up the UCD hunt group. In this instance, the UCD group is extensions 220-223, with 220 as the pilot.

**NOTE**

Do not adjust UCD hunt group settings if using an OAI pure integration.

Cmd	Tenant	Value	Description
ASHU	1	220	Pilot and Port number
		221	Port number
		222	Port number
		223	Port number

### To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following default settings or that the configuration files are updated.

**WARNING**

If the default settings below are not used, the corresponding settings in the OAI Integration software must be set up accordingly by editing the XML configuration file.

- 1 Type the **AOKC** command in the Windows MAT application. The AOKC (OAI Key Code Data) dialog box appears.

- 2 Assign the OAI key code data:

The OAI key codes 1 through 14 correspond to AKYD key codes FKY 34 through 47 respectively. By default, the OAI Integration server uses the TMF codes 192-195 for the Live Record commands Record, Pause/Resume, Re-Record and End, respectively.

- Set **F-KIND** to **2**.
- Set **C-TONE** to **1**.

- 3 Save the AOKC key code information.

- 4 Type **AKYD** command in the Windows MAT application. The AKYD (Dterm Key Data) dialog box appears.

Assign the function key data for the desired Dterm station;

- Assign FKY 34 through 47 to any positions of FKY 1 through 16.
- The OAI key codes for the NEAX 2400 are FKY 34-47 and by default are assigned to the third row from the top of function keys on the Dterm station. This row contains the function keys with ID 9 to 12.
- Confirm that the my-line is assigned in order to successfully complete the AKYD command.

- 5 Click **Exit** to save the AKYD information.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the voice mail server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To select the INI file

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### NOTE

The settings below apply to all NEC NEAX 2400 phone systems.

#### Phone settings for OAI integrations with analog ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	4203 and later analog boards and OAI
Integration method	OAI

#### Phone settings for OAI integrations with T1 ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	4203 and later T1 boards and OAI
Integration method	OAI

#### Phone settings for OAI integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	HDS R4 and later digital board with OAI
Integration method	OAI

#### Phone settings for OAI integrations with IP ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	Software release 16 or newer with IP ports
Integration method	OAI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

### To update the INI file

- 1 Using Windows Explorer on the UM8500 server, go to the CommServer\IntLib directory.
- 2 Use a text editor to open the corresponding configuration INI file noted in the previous procedure.
- 3 In the [Configuration] section, modify the NetIP1 value:
  - Replace the NetIPI with the exact IP address that the computer is using to access the same LAN as the phone system. For example:  
NetIP1=172.16.19.191.
  - The NetIP1 = the IP address of the computer where UM8500 is installed; the default value is set to "localhost" but it should be changed because it is possible for the server machine to have more than one network interface.
- 4 If using the OAI UCD - LAN MCI integration, under [Configuration], locate UseInternalParser=no. Change this to UseInternalParser=yes.
- 5 Click **File > Save**, and then close the configuration INI file.

# Installing the OAI Integration Server software

Before configuring the OAI integration, the OAI integration software must be installed on the computer where UNIVERGE UM8500 is installed.

## To install the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration folder on the disc.
- 4 Click **setup.exe**, then click **Open**.
- 5 On the Run dialog box, click **OK**. The installation wizard begins.
- 6 On the Welcome page, click **Next**.
- 7 On the Customer Information page; if the **User Name** and **Customer Name** fields do not have your information, enter your information into the fields. Select an option indicating whether or not you or anyone else who uses the computer has access to the program. Click **Next**.
- 8 On the Setup Type page, confirm that **Typical** is selected, then click **Next**.
- 9 On the Start Copying Files page, click **Next**.
- 10 When setup is complete, click **Finish**.

A new Program Group, Active Voice, is added to the program list. Two new applications are added to this program group: AvOAIGear and AvOAITray. These applications are used to set up the OAI integration parameters.

## To select a predefined template for the integration in the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration\OAI Server XML Templates\Single Server folder on the compact disc. This will show a group of folders that contain predefined sets of XML configuration files meant to help select the best OAI configuration.

Open the appropriate folder for the integration.

- For an OAI pure integration, open the **NEC NEAX 2400 - OAI Pure - No CCIS** folder.
  - For an OAI UCD - Serial MCI integration, open the **NEC NEAX 2400 - OAI-UCD - MCI Serial** folder.
  - For an OAI UCD - LAN MCI integration, open the **NEC NEAX 2400 - OAI-UCD - MCI LAN** folder.
- 4 From the selected folder, copy and replace the existing AvOAISvr.xml file to the Program Files\Active Voice\OAIIntegration folder on the UNIVERGE UM8500 server.

The Program Files folder is usually found on the partition where Microsoft Windows was first installed, for example: C:\Program Files\Active Voice\OAIIntegration.

# Configuring the OAI Integration Server

Modify the configuration file to set how calls are handled in the integration.

## To configure the OAI Integration Server

- 1 From the Windows taskbar, click **Start > All Programs > Active Voice > OAI Integration > AVOAI Tray**.

The OAIS icon appears in the notification area of the system tray.

- 2 Right-click the OAIS icon, then click **Advanced**.

The OAIGear page appears.

### WARNING

If an error message appears indicating the service is not installed, close the error dialog box and continue with this procedure. The AV OAI Integration Service will automatically install after the procedure is completed.

- 3 On the OAIGear toolbar, click the **Configuration File** icon.

The configuration file for the OAIS parameters appears in an XML editor.

- 4 In the navigation pane of the configuration file, expand CallPilot1 to configure the CallPilot.

In the navigation pane, under the CallPilot object, there are some predefined values for all parameters. Depending on the template chosen, set the following values:

**PBX-IP:** Enter the IP address of the phone system or, if the UM8500 server is connected to the LAN through a different network interface card, enter the IP address of the network interface card. The default value is only an example.

**PBX-Port:** Enter the OAI monitoring port of the phone system. The default value is 60030 for newer phone systems. Modify the default value only if you know that the phone system is set to a different value.

**Tenant:** PBX Tenant where the OAI pilot (AMNO number) is defined physically. In case the integration is MCI based, this will be the tenant number where the UCD is configured. This value should match the setting in the phone system configuration. The default value is 1.

**Extension:** If the template that enables an OAI pure integration (NEC 2400 - OAI Pure - No CCIS) was selected, enter the CallPilot OAI monitored extension (AMNO number). This extension is usually associated with the auto attendant and is a virtual number. In this case, this will be the monitored number that is called to access the voice messaging system. The default value is just an example.

If one of the templates that enables an OAI UCD - MCI Serial integration (NEC NEAX 2400 - OAI-UCD - MCI Serial or NEC NEAX 2400 - OAI-UCD - MCI LAN) was selected, leave this field blank.

Leave all other parameters not listed above at their default values.

- 5 If the system is using the Live Record feature, in the navigation pane of the configuration file, expand the LiveRecord node, and set the following parameters:

### NOTE

Skip this step if the system is not using the Live Record feature.

The OAI Live Record feature allows users to make real-time recordings of their own conversations. The values in this section must be configured to match the phone system settings.

**Enabled:** This Enables/Disables the Live Record functionality. The default value is True.

**TMFC-Record:** Enter the Terminal Mode Function Code for the Record command for Live Record. The default value is 192 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-Pause:** Enter the Terminal Mode Function Code for the Pause command for Live Record. The default value is 193 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-ReRecord:** Enter the Terminal Mode Function Code for the ReRecord command for Live Record. The default value is 194 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-End:** Enter the Terminal Mode Function Code for the End command for Live Record. The default value is 195 as this is the predefined function in the phone system, but can be changed if needed.

**KC-Record:** Enter the OAI Key Code used for the Record command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 1.

**KC-Pause:** Enter the OAI Key Code used for the Pause/Resume command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 2.

**KC-Rerecord:** Enter the OAI Key Code used for the ReRecord command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 3.

**KC-End:** Enter the OAI Key Code used for the End command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 4.

**ToggleStartStop:** This feature allows the user to press a single key to start, stop, or restart a Live Record session. To enable the feature, enter True. To disable the feature, enter False. The default value is True.

- 6 If using a template that enables the OAI UCD-MCI serial integration, in the navigation panel of the configuration file, expand the MCI-Serial node.

#### NOTE

Do not complete this step if a template other than the NEC NEAX 2400 - OAI-UCD - MCI Serial template, where the phone system cmd ASYDL Sys 1 Index 833 Bit 0 value is 0, was selected.

The settings must match the settings of the phone system for the MCI Serial connection.

**Format.** Enter the format of the MCI-serial packets expected from the phone system. Enter **I C S** for regular (ICS/IVS) serial packets, or **I M X** for expanded (IMX) packets. The default is ICS.

**COMPort.** Enter the COM number of the serial port. This is the voice server serial port that is connected by the RS-232 cable to the MCI link on the phone system. Accepted values are **COM1** or **COM2**. The default is COM1.

**BaudRate.** Enter the baud rate used by the serial (RS-232/MCI) communication. The value must be identical to the phone system setting. Accepted values are **1200**, **2400**, **4800**, **9600**, or the specially defined phone system setting. The default value is 9600.

**DataBits.** Enter the default phone system data bits. Accepted values are **4**, **5**, **6**, **7**, or **8**. The default value is 8.

**Parity.** Enter the parity used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **N** for NONE, **E** for EVEN, or **O** for ODD. The default value is N.



**StopBits.** Enter the stop bits used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **1**, **1.5**, **2**, or the specially defined phone system setting. The default value is 1.

Leave all other parameters not listed above at their default values.

- 7 If using a template that enables the MCI-LAN integration, in the navigation panel of the configuration file, expand the MCI-LAN node.

**NOTE**

Do not complete this step if a template other than the NEC NEAX 2400 - OAI-UCD-MCI LAN template, where the PBX cmd ASYDL Sys 1 Index 833 Bit 0 value is 1, was selected.

The settings must match the phone system settings for the MCI LAN connection.

**LAN-IP.** Enter the IP address of the LAN-MCI port on the phone system. The default value is just an example and must be changed depending on the phone system.

**NOTE**

In older revisions of phone systems, the IP address of the LAN-MCI interface is sometimes different from the IP address of the OAI, used in the CallPilot1 section.

**Format.** Enter the format of the MCI-LAN packets expected from the phone system. Enter **ICS** for regular (ICS/IVS) packets, or **IMX** for expanded (IMX) packets. The default is IMX.

**Parity.** Enter the parity or checksum used by the phone system to process the MCI-LAN packets. Accepted values are **None**, **Even**, or **Odd**. The default is Odd.

**LocalPort.** Enter the local port used by the MCI-LAN integration module for a TCP/IP connection to the phone system. Accepted values are any valid TCP/IP port. The default is 60120. Do not change this value unless you know that this port is already taken by other applications on the UM8500 server.

**DeviceID.** Enter the device ID used by the MCI-LAN integration module to identify itself to the MCI interface on the phone system. Accepted values are 0 and 1. The default is 1.

Leave all other parameters not listed above at their default values.

- 8 In the navigation pane of the configuration file, expand VMSys1 node.

Set the following parameters to configure the VMSys1 node:

**Host.** Enter the IP address of the monitored voice mail server. This will be the same IP address entered previously in the configuration ini file. The default value is just an example.

**PortRange.** Enter the port or range of ports for the phone system tenant hosting the voice mail ports. Ports can be set by entering a single port number, for example `xxxx`; a range of numbers, for example `xxxx-xxxx`; or a combination or both, for example `xxxx-xxxx,x`. The default ports are just an example.

**Tenant.** Enter the PBX tenant number where the voice mail ports are set. The default value is 1.

Leave all other parameters not listed above at their default values.

- 9 Click **File > Save** to save the XML configuration file.

- 10 Install the OAI service and test the integration.

See [“Installing and starting the OAI service” on page 176](#).

# Installing and starting the OAI service

After saving the configuration file, install the OAI service then test the service to ensure a successful integration.

## To install the OAI Service

- 1 On the OAI Gear page, click the **Install Service** icon, or from the Service menu, click **Install Service**.
- 2 On the AV OAI Voice Mail Integration Server - Install Service dialog box, select the **This account** option.
- 3 Enter the domain Administrator name, type and confirm the domain Administrator password for the domain, then click **OK**.

### NOTE

It is recommended that the same domain administrator account that was used to install the UM8500 software is entered. The Administrator name might need to be prefaced with the domain. For example, *<domain name>\Administrator*.

You can also select to install the OAI Service under a Local System account, or even a different domain account, but this can cause difficulties when troubleshooting any subsequent integration problems.

- 4 From the Windows taskbar, click **Start > All Programs > Administrative Tools > Services**.

The Services MMC snap-in appears.

- 5 In the details pane, confirm that the AV OAI Integration Server service is listed.
- 6 Right-click **AV OAI Integration Server**, then click **Properties**.
- 7 On the General tab, ensure that the Startup type is **Automatic**.
- 8 Click the **Recovery** tab and then do the following:
  - Confirm that **Restart the Service** is selected for each failure attempt.
  - Type 1 in the **Restart service after** field.
- 9 Click **OK** to exit the AV OAI Voice Mail Integration Server Properties dialog box.
- 10 Start the OAI Integration server using either of the following methods:
  - In the **Services MMC snap-in**, right-click **AV OAI Integration Server**, then click **Start**, or
  - Right-click the **AV OAI Server** in the notification area, and then click **Start service**.

The icon changes from stop to start.

## Testing the OAI integration

After installing the service and setting up the parameters, test the integration to ensure that it works correctly.

## To test the OAI Integration Server

- 1 Place a direct call to the voice mail pilot number and confirm that is answering. Use a voice mail subscriber extension with a valid phone extension to place a call to the voice mail pilot number. You should hear: "Please Enter Your Password."
- 2 Leave a voice message for a test user that has an actual phone extension.

- Confirm that the message indicator for the extension is on. This verifies that the MWI section of the configuration file was set properly.
  - If the Message Count field in the MWI-OAI node of the configuration file was set to True, confirm that the message count is listed.
- 3** Retrieve the voice message and confirm that the message waiting indicator turns off and the phone display clears.



# ■ NEC NEAX 2400 or NEC SV7000 with LAN MCI

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 If the system uses T1 voice messaging ports, set up the digital trunk interface board.**  
See “[Setting up the trunk board](#)” on page 182.
- 3 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 184.
- 4 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring the UNIVERGE UM8500 for integration](#)” on page 188.

## Requirements

The steps to set up the NEC NEAX 2400 or SV7000 Message Center Interface (MCI) integration with a LAN interface require the following:

### Phone System

- A NEAX 2400 IMX or SV7000 (model T10 or T20) phone system with LAN MCI.
- A network connection to the UNIVERGE UM8500 server.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Analog	One analog station port for each voice messaging port.
T1	One digital line interface card for each group of 24 voice messaging ports.
Digital	One digital station port for each voice messaging port.
IP-VPS	One IP-VPS port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port.

### UNIVERGE UM8500 server

- A network connection with the phone system.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

- For the latest information on supported voice boards for UM8500, contact a sales representative.
  - No voice boards are required if IP-VPS or IP Terminal ports are used.
- UNIVERGE UM8500 installed and ready for the integration as described in the *Installation Guide*.
  - A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

## How the integration works

The LAN MCI integration uses a network connection to transmit the integration information between UNIVERGE UM8500 server and the phone system.

The phone system sends the following information through the LAN connection:

- The extension of the called party
- The extension of the calling party, for internal calls, or the phone number of the calling party if it is an external call and the system uses caller ID
- The reason for the forward, for example the extension is busy, does not answer, or is set to forward all calls

UM8500 uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the personal greeting of the subscriber. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

The UM8500 systems controls message indications by sending on and off codes to the phone system through the LAN connection.

## Integration features

The LAN MCI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

### NOTE

The MWI over CCIS through LANMCI integration only works if a closed numbering plan is used.

## Setting up the trunk board

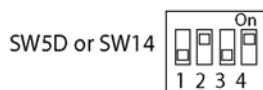
If the phone system uses a T1 line to connect to UNIVERGE UM8500, confirm that the trunk board firmware version is correct, and set the DIP switches before programming the phone system.

### To confirm the trunk board firmware version

- 1 Remove the trunk board from the phone system.
- 2 Locate the removable, integrated circuit (PROM) with a white label. This PROM contains the trunk board program, or firmware. The relative location of the PROM may vary, but it is the only PROM with a white label on the trunk board.
- 3 Confirm that the firmware version printed on the label is “SP-3298 3A 001” or later. If the version is incorrect, update the firmware by replacing the PROM or the trunk board

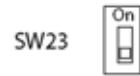
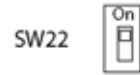
### To set the trunk board switches

- Set the switches for the trunk board as shown below:
  - For a 24DTR/DLI trunk board.





- For a SPADLIC A trunk board.



SW10, SW13, SW15,  
SW16, SW17, SW18,  
SW19, SW20, SW21,  
SW26, SW27, SW28

All switches off.

# Programming the phone system

If programming options other than those specified in the following procedure are used, the integration performance might be affected.

## NOTE

The following procedures are written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## Programming the phone system steps

- 1 Program the voice messaging ports. The procedure used depends on the port type the system is using.**
  - For analog ports, see [“To program the analog ports” on page 184.](#)
  - For T1 ports, see [“To program the T1 ports” on page 184.](#)
  - For digital ports, see [“To program the digital ports” on page 184.](#)
  - For IP-VPS ports, see [“To program the IP-VPS ports” on page 184.](#)
  - For IP Terminal ports, see [“To program the IP Terminal ports” on page 185.](#)
- 2 Program the phone system**

Complete programming the phone system. See [“To complete programming the phone system” on page 186.](#)

### To program the analog ports

- 1 Assign all voice messaging ports to a UCD group.
- 2 Complete programming the phone system. See [“To complete programming the phone system” on page 186.](#)

### To program the T1 ports

- 1 Assign each line circuit an extension number, then add each of the numbers to the UCD group.
- 2 Complete programming the phone system. See [“To complete programming the phone system” on page 186.](#)

### To program the digital ports

- 1 Specify a Service Feature Restriction Class (SFC) for all voice messaging ports using the ASFC command.

The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of **26** to the Telephony Equipment Class (TEC) for each voice messaging port using the ASDT command. Use the SFC previously created.
- 3 Assign all voice messaging ports to a UCD group.
- 4 Complete programming the phone system. See [“To complete programming the phone system” on page 186.](#)

### To program the IP-VPS ports

- 1 Make sure that the NEAX 2400 system has enough IP licenses using the DPTR command.

- 2 Configure the voice messaging ports as IP-VPS extensions using AISTL command, KIND=IP VPS, TEC = 26.
- 3 Assign them successive VPS channels, starting with IP VPS CH= 0.
- 4 Write down the VPS ID value of the voice messaging ports, so the value is available when the UNIVERGE UM8500 installation wizard asks for it.

#### CAUTION

- All voice messaging ports must have the same value assigned for VPS ID.
- Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using ASHU command.

#### NOTE

If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the ALGSN, ASHUN commands.

#### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 7 Complete programming the phone system. See [“To complete programming the phone system” on page 186](#).

## To program the IP Terminal ports

- 1 Make sure that the NEAX 2400 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP Terminal extensions using the AISTL command, KIND=IP DTERM, TEC = 12.
- 3 Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.
- 4 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant

SFI	Service feature
104	Blind transfer

- Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group (see command ASHU).

#### NOTES

- Logical numbers appear only in a NEC Fusion network and are used to uniquely identify all the extensions in the network.
- If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the commands ALGSN, ASHUN.

#### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- Complete programming the phone system. See [“To complete programming the phone system” on page 186](#).

### To complete programming the phone system

- Set the interface type for MCI to LAN using command ASYDL, index 833, bit b0 and b1 must be set to 1.

#### NOTE

In a NEC Fusion network, the phone system that contains the extensions of the voice messaging ports must be the one that also sends the integration data to the UNIVERGE UM8500 through the LAN MCI module.

- Program each phone to forward calls to the UCD pilot number assigned to the voice messaging ports based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when extension is busy.

#### Programming system data

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
		b5	1	MWI controlled by MCI
	34	b1–4	0	Set output to no parity and 1 stop bit
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Called station status display enabled

**Programming system data**

System	Index	Bit	Value	Description
	238	b0–7	0	Lamp flash rate
	246	b3	0	MCI expansion set to normal
	400	b2	1	Calling number information sent to MCI
2	6	b0	1	MCI in service when terminating to a UCD group
	7	b1	0	MCI out of service when terminating to attendant console

**Programming system data local data**

System	Index	Bit	Value	Description
1	641	b1	0/1	0/1: MCI/IMX station number/phone number
	832	b0–7	00–FD	Assign the FPC of the node connected to MC
	833	b0	1	Interface type for MCI: 0/1 = RS-232C interface/LAN interface
		b1	1	0/1: ICS/IMX format

# Configuring the UNIVERGE UM8500 for integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedures to confirm that the integration is enabled, to configure the LAN MCI parameters, and to configure the UNIVERGE UM8500 ports.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### Phone settings for integrations with analog ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX 2400 IMS
Switch PBX software version	4203 and later with analog boards and LANMCI
Integration	LANMCI

### Phone settings for integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX 2400 IMS
Switch PBX software version	4203 and later with digital boards and LANMCI
Integration	LANMCI

### Phone settings for integrations with T1 ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX 2400 IMS
Switch PBX software version	4203 and later with T1 boards and LANMCI
Integration	LANMCI

### Phone settings for integrations with IP Terminal or IP-VPS ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch PBX software version	Software Release 16 or later with IP ports
Integration	LANMCI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## To configure LAN MCI parameters

- 1 Shut down UNIVERGE UM8500 before setting the following parameters.
- 2 Click **Start > Programs > UNIVERGE UM8500 group > Edit Switch Utility**.
- 3 Ensure the current phone system file is correct and then click **Edit this Switch Configuration**.
- 4 In the Switch Configuration window, click the **Integration** tab.
- 5 In the PBX Connection Settings section, enter the IP address of the phone system that provides UNIVERGE UM8500 server with the integration data.
- 6 Enter the type of parity check used for LANMCI module in phone system, this can be odd or even, in **Parity** field. See the command ASYD, index 34, b1 through b4.
- 7 Enter the ID number of a free LANMCI device in **Device ID** field. NEC NEAX 2400 and SV7000 offer 2 devices (0 and 1) and UM8500 can connect and receive MCI (Message Center Interface) data from either.
- 8 If the phone system is configured to use office codes for internal extensions, the office code must be entered in the **Ignored Prefixes** and **Ignored VM Prefixes** fields of the **Edit Switch Utility > Integration** tab. To check whether the phone system uses office codes:
  - Use command ASYD, confirm that index 240, bit b4 is set to 0.
  - Write down the office code that the phone system uses for internal calls.
  - Check to see if the phone system is not set to remove the office code from MCI packets, see the ASYD command, index 370, bit b1 is set to 0.
  - Return to **Edit Switch Utility > Integration** tab. Enter the office code recorded above in the **Ignored Prefixes** field and **Ignored VM Prefixes** field. Otherwise, leave the two edit boxes blank (ASYD, index 240, bit b4 is not set to 0 or ASYD, index 370, bit b1 is not set to 0).

### NOTE

An office code is usually introduced to distinguish the extensions of different phone systems that communicate through a CCIS connection. This office code can not be dialed; it appears only in the integration data and on the screen display of the phones for calls over CCIS.

- 9 Leave the other settings at the default values and then click **OK** to save the changes and close Edit Switch utility.

## Configuring UNIVERGE UM8500 ports

Configure the UM8500 voice ports. The procedure used depends on the port type the system is using.

- For IP-VPS or IP Terminal ports, see [“To configure IP-VPS or IP Terminal ports” on page 190](#).
- For analog, T1, or digital ports, see [“To configure Analog, T1 or Digital ports” on page 190](#).

## To configure IP-VPS or IP Terminal ports

- 1 Stop the UNIVERGE UM8500.
- 2 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 3 Enter the PBX IP address.
- 4 Set the general functionality for the ports (VPS or Terminal.)  
If the system has VPS ports, enter the **VPS Number**.
- 5 Under Manage ports, click **Add** to add a new port.  
Enter the **Extension** and **Password** for each port.  
If the system has VPS ports, enter the VPS Channel for each port.
- 6 If the system uses one or more IP PADs, under Manage Gateways, click **Add**.  
Enter the **IP Address** and set the **Has DSP** to 0 for each gateway.
- 7 Click **OK** to save the changes and then close VOIPAdmin.
- 8 Restart UNIVERGE UM8500.

## To configure Analog, T1 or Digital ports

- 1 Make sure that UNIVERGE UM8500 is running.
- 2 In Internet Explorer, go to the UM8500 Administrator  
`http://<server name>/saweb`
- 3 Go to **System > Ports**. Type the extension of each port. These extensions must be introduced as station numbers, not logical numbers and without the office codes, if they have any. Save the changes.



# ■ NEC UNIVERGE SV7000/ SV7000MPS with IP Protims

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all equipment, phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.
- 2 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 194.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 195.

## Requirements

The steps to set up the NEC SV7000/SV7000MPS IP Protims integration require the following:

### Equipment

- All Dterm<sup>®</sup> IP phones that will be used with UNIVERGE UM8500 must have software version 1.2 or newer.

### SV7000/SV7000MPS phone system

- UNIVERGE SV7000/SV7000MPS installed and ready for the integration as described in the phone system documentation.
- Password encryption type for IP extensions is MD5, see command ASYDL, index 848, b7=0.
- Fully functional IP PAD cards with VCTI sub-boards.

#### NOTE

IP PAD cards provide interface function between IP telephony, terminals or other devices on LAN, and non-IP telephony, conventional networks such as PSTN, ISDN, and private networks. If the telephony network is 100% IP, the IP PAD cards are not mandatory.

### UNIVERGE UM8500 server

- If the G729 codec is used, the Sipro Lab G729 codec driver must be installed in the voice mail server. The installation file for this driver is named `sl_g729a_setup.exe` and can be found in the Voice Mail\Utilities folder on the *Installation* disc.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

SV7000/SV7000MPS IP Protims integration uses a network connection to connect messaging system server with the phone system. Each voice messaging port emulates an IP-VPS extension. The communication between the parties is facilitated by a series of Voice over IP (VOIP) protocols, such as DRS, Protims, RTP, H245, Voice control, used for call signaling and voice streaming, some of them being NEC proprietary protocols.

### Integration features

The SV7000/SV7000MPS IP Protims integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

If programming options other than those described in the following procedures are used, the integration's performance might be affected.

## NOTE

The following procedures are written on the assumption that you will use the SV7000/SV7000MPS PCPro Software to program the phone system.

## To program the IP voice messaging ports in the phone system

- 1 Make sure that the SV7000/SV7000MPS phone system has licenses for using IP extensions by using the DPTR command.
- 2 Configure the voice messaging ports as IP-VPS extensions by using the AISTL command to set "KIND = IP VPS" and "TEC = 26."

Assign the ports successive VPS channels, starting with "IP VPS CH = 0."

- 3 Write down the VPS ID value of the voice messaging ports, for use during the UM8500 installation. Enter the value when the UNIVERGE UM8500 installation wizard asks for this value.

## CAUTION

All voice messaging ports must have the same value assigned for VPS ID.

- 4 Write down the MWI analog codes that the SV7000/SV7000MPS phone system uses for turning the phones lamps on and off. These codes are needed when configuring UM8500 to work with the integration.

## NOTE

The SV7000/SV7000MPS phone system may not have any settings made to use codes for MWI analog operations. If this is the case, use the ANPD and ASPA commands to set "SRV=SSCA" and "SIDA=54 / 55."

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports by using the ASFC command. It is recommended that all of the voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using the ASHU command.
- 7 Set the same location ID for all voice messaging ports and set either or both of the codecs G711, U-Law or A-Law, and G729A with payload size equal to 40 milliseconds for that location ID using the commands ALOCL and AIVCL.

## NOTE

To associate the voice messaging ports with a specific location, add the IP address of the messaging system server to that location.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **IP Protims**.
- 4 If the setting is not **IP Protims**, contact a sales representative for the necessary system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, integration features might not be enabled.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	UNIVERGE SV7000/ SV7000MPS
Switch Software Version	IP Protims ports display like DTERM_E IP Protims ports display like DTERM_III
Integration	VOIP-Protims

#### NOTE

The software version used depends on the phone system settings. Check the parameter ASYDL 672. If bit b1=1, the software version must be "IP Protims ports display like DTERM\_E". Otherwise, the software version must be "IP Protims ports display like DTERM\_III".

- 6 Enter the MWI analog codes that the SV7000/SV7000MPS phone system uses for turning the phones lamps on and off. Save the changes.
- 7 Stop UNIVERGE UM8500.
- 8 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 9 Enter IP address of the phone system.
- 10 Set the general functionality for the ports as VPS and enter the VPS number.
- 11 Under Manage ports, click **Add** to add a new port.
  - Enter the Extension, Password, and VPS channel for each port.
- 12 If the system uses one or more IP PADs, under Manage Gateways click **Add**.
  - Enter the IP Address and set the Has DSP to 0 for each gateway.
- 13 Click **OK** to save the changes and then close VOIPAdmin.
- 14 Start UNIVERGE UM8500.
- 15 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).

- 16 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page. If the extensions are incorrect, stop UM8500, verify the PBX settings made for the voice messaging ports, see [“To program the IP voice messaging ports in the phone system” on page 194](#), and use the VOIPAdmin tool to make the necessary adjustments.



# NEC UNIVERGE SV7000 with OAI

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# Integration overview

UNIVERGE UM8500 uses the Open Application Interface (OAI) to integrate with NEC PBX systems using a TCP/IP link between the UNIVERGE UM8500 server and the PBX. OAI Integration can be used with digital, analog, T1, or IP lines and requires that the OAI Integration server is installed.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all phone system and messaging system server requirements have been met. See [“Requirements” on page 199](#).

### 2 Program the phone system and extensions.

See [“Programming the phone system” on page 201](#).

### 3 Configure UNIVERGE UM8500 for the integration.

See [“Configuring UNIVERGE UM8500 for the integration” on page 204](#).

### 4 Install the OAI Integration Server software.

See [“Installing the OAI Integration Server software” on page 206](#).

### 5 Configure the OAI Integration Server.

See [“Configuring the OAI Integration Server” on page 207](#).

### 6 Install and start the OAI service.

See [“Installing and starting the OAI service” on page 210](#).



## Requirements

The steps to set up the UNIVERGE SV7000 with OAI integration require the following:

### Phone System

- A UNIVERGE SV7000 phone system.
- A network connection to the voice mail server.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Analog	One analog station port for each voice messaging port.
T1	One digital line interface card for each group of 24 voice messaging ports.
Digital	One digital station port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port (TEC12).
IP-VPS	One IP-VPS port for each voice messaging port (TEC26).

### UNIVERGE UM8500 server

- A network connection with the phone system. A second network card on the messaging system server to connect directly to the phone system is recommended.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

- For the latest information on supported voice boards for UM8500, contact a sales representative.
- No voice boards are required if IP-VPS or IP Terminal ports are used.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- OAI Integration server installed.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

The UNIVERGE UM8500 unified messaging solution can use the Open Application Interface (OAI) to integrate with the NEC UNIVERGE SV7000 or SV7000 MPS phone systems. The OAI integration is established over a TCP/IP link between the messaging system and the NEC phone system.

### How the integration works

There are two basic types of OAI integrations:

- **OAI pure integration.** This type of integration uses only the TCP/IP link to connect to the phone system. It has an OAI monitoring slot opened with the phone system and dispatches calls to enabled voice messaging systems. This type of OAI Integration provides the most efficient load balancing capability by dispatching new incoming calls from a monitored number or the voice mail pilot to free voice mail ports.
- **OAI UCD - LAN MCI integration.** The OAI Integration server uses complementary Message Center Interface (MCI) integration capabilities through the TCP/IP interface. The complementary MCI integration feature of the OAI Integration server is not a genuine OAI integration. The integration does work in Common Channel Interoffice Signaling (CCIS) networked environments between multiple NEC phone systems when the remote phone systems do not have OAI or their software revision does not feature call-forwarding information in the OAI layer. The MCI link is used as complementary integration support for situations where the OAI layer does not provide full integration, such as in older, legacy phone system environments.

### Integration features

The UNIVERGE SV7000 OAI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration performance might be affected.

The steps used to program the phone system depends on the phone system being used.

## NOTE

The following procedures are written on the assumption that you will use a Maintenance Administration Terminal (MAT) to program the phone system.

## To set up the UNIVERGE SV7000

- 1 Use the following table to configure the phone system OAI settings for integration:

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYD	1	4	4	1	59	Enable RCS Check from OAI
	1	17	0	1	15	Enable switch while ringing
	1	19	5	1	20	0 = Enable ETF, 1 = Disable ETF
	1	27	4	0	00	0 = Enable MCI, CCIS, ISDN, MW, 1 = Disable MCI, CCIS, ISDN, MW
	1	27	6	0	00	0 = Enable OAI, 1 = Enable OAI
	1	31	2	1	06	CM Page (Name Display)
	1	63	6	1	C1	Enable Call Fwd detail in STS SMFN
	1	63	7	0/1	C1	0 = External OAI, 1 = Internal OAI
	1	79	6	0	00	0 = Enable OAI/ACD services, 1 = Disable OAI/ACD services
	1	80	2	1	04	0 = Clear OAI display, 1 = Leave OAI display
	1	86	6	0	93	0 = English, 1 = Japan
	1	186	0	1	61	Enable CCIS link-reconnect
	1	241	2	1	0E	LP sends SMFNs to IP
	1	241	3	1	00	Enable detail error codes
	1	299	2	0	00	Must be 0
	1	370	0	1	01	Enable expanded SMFN
	1	439	0	1	01	Enable Call Fwd info over CCIS
	1	449	3	1	08	0 = Hex ANI data for ISDN trunk, 1 = /ASCII data for ISDN trunk
	2	2	5	1	2B	Enable loop release
ASYDL	1	864	0	1	11	Internal IP/ACDP in Service (SVI 1758) 0 = No, 1 = Yes
	1	864	4	1	11	Maximum number of SMFN Output port (SVI 1792) 0 = 2 Ports, 1 = * Ports (normal)
RSVI	SVI 1650			1	1	Call Fwd status for answer SMFN
	SVI 1755			1	1	Call Fwd reason enhancement (over CCIS)
	SVI 1760			1	1	Release SMFN enhancement

- 2 If using an OAI pure integration, use the following table to configure the OAI pilot number. In the example below, extension 299 is the voice mail pilot number:

Command (Description)	Parameter	Value
AMNO (Assignment of Monitored Number)	A/G	A
	TN	1
	MNO	299
	NMI	1
	MFC	0
	UCD	0

- 3 If using the OAI UCD-LAN MCI integration, use the following table to configure Message Center Interface (MCI). If using an OAI pure integration, skip this step. The following commands enable MCI over LAN. The settings made here also need to be enabled in the OAI Server software.

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYDL	1	833	0	1	03	MCI type: 0 = IOC (Input-Output Card) this means no MCI 1 = LAN
	1	833	1	1	03	MCI text format: 0 = ICS 1 = IMX
	1	834	0	1	03	MCI 0 LAN Interface in service: 0 = No 1 = Yes
	1	834	1	1	03	MCI 1 LAN Interface in service: 0 = No 1 = Yes
ASYD	1	246	3	1	08	MCI Expansion: 0 = Normal 1 = Expanded
	1	400	2	1	04	Expanded MCI with ANI Data: 0 = No 1 = Yes

- 4 If using the OAI UCD-LAN/Serial MCI integration, use the following table to set up the UCD hunt group. In the example below, the UCD group is extensions 220-223, with 220 as the pilot.

#### NOTE

Do not adjust UCD hunt group settings if using an OAI pure integration.

Cmd	Tenant	Value	Description
ASHU	1	220	Pilot and Port number
		221	Port number
		222	Port number
		223	Port number

## To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following settings or that the configuration files are updated. The settings presented below are the default settings that the OAI server can use.

### WARNING

If the default settings below are not used, the corresponding settings in the OAI Integration software must be set up accordingly by editing the XML configuration file.

**1** Type the **AOKC** command in the Windows MAT application. The AOKC (OAI Key Code Data) dialog box appears.

**2** Assign the OAI key code data:

The OAI key codes 1 through 14 correspond to AKYD key codes FKY 34 through 47 respectively. By default the OAI Integration server uses the TMF codes 192-195 for the Live Record commands Record, Pause/Resume, Re-Record and End, respectively.

- Set **F-KIND** to **2**.
- Set **C-TONE** to **1**.

**3** Save the AOKC key code information.

**4** Type the **AKYD** command in the Windows MAT application. The AKYD (Dterm Key Data) dialog box appears.

Assign the function key data for the desired Dterm station:

- Assign FKY 34 through 47 to any positions of FKY 1 through 16.
- The OAI key codes for the NEAX 2400 are FKY 34-47 and by default are assigned to the third row from the top of function keys on the Dterm station. This row contains the function keys with ID 9 to 12.
- Confirm that the my-line is assigned in order to successfully complete the AKYD command.

**5** Click **Exit** to save the AKYD information.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UNIVERGE UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### NOTE

The settings below apply to all NEC UNIVERGE SV7000 phone systems.

## Phone settings for OAI integrations with analog ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	4203 and later analog boards and OAI
Integration method	OAI

## Phone settings for OAI integrations with T1 ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	4203 and later T1 boards and OAI
Integration method	OAI

## Phone settings for OAI integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	HDS R4 and later digital board with OAI
Integration method	OAI

## Phone settings for OAI integrations with IP ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	Software release 16 or newer with IP ports
Integration method	OAI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## To update the INI file

- 1 Using Windows Explorer on the UNIVERGE UM8500 server, go to the `CommServer\IntLib` directory.
- 2 Use a text editor to open the corresponding configuration INI file noted in the previous procedure.

- 3 In the [Configuration] section, modify the NetIP1 value:
  - Replace the NetIPI with the exact IP address that the computer is using to access the same LAN as the phone system.  
Example: `NetIP1=172.16.19.191`.
  - The NetIP1 = the IP address of the computer where UM8500 is installed; the default value is set to "localhost" but it should be changed because it is possible for the server machine to have more than one network interfaces.
- 4 If using the OAI UCD - LAN MCI integration, under [Configuration], locate `UseInternalParser=no`. Change this to `UseInternalParser=yes`.
- 5 Click **File > Save**, and then close the configuration INI file.

# Installing the OAI Integration Server software

Before configuring the OAI integration, the OAI integration software must be installed on the computer where the UNIVERGE UM8500 is installed.

## To install the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 Click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration folder on the disc.
- 4 Click **setup.exe**, then click **Open**.
- 5 In the Run dialog box, click **OK**. The installation wizard begins.
- 6 On the Welcome page, click **Next**.
- 7 On the Customer Information page; if the **User Name** and **Customer Name** fields do not have your information, enter your information into the fields. Select an option indicating whether or not you or anyone else who uses the computer has access to the program. Click **Next**.
- 8 On the Setup Type page, confirm that **Typical** is selected, then click **Next**.
- 9 On the Start Copying Files page, click **Next**.
- 10 When setup is complete, click **Finish**.

A new Program Group, Active Voice, is added to the program list. Two new applications are added to this program group: AvOAIGear and AvOAITray. These applications are used to set up the OAI integration parameters.

## To choose a predefined template for the integration in the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration\OAI Server XML Templates\Single Server folder on the disc. This will show a group of folders that contain predefined sets of XML configuration files meant to help choose the best OAI configuration.

Open the appropriate folder for the integration.

- If using the OAI pure integration, open the **NEC SV7000 - OAI Pure - No CCIS** folder.
  - If using the OAI UCD - LAN MCI integration, open the **NEC SV7000 - OAI-UCD - MCI LAN** folder.
- 4 From the selected folder, copy and replace the existing AvOAISvr.xml file to the Program Files\Active Voice\OAIIntegration folder on the UNIVERGE UM8500 server.

The Program Files folder is usually found on the partition where the Microsoft Windows was first installed, for example: C:\Program Files\Active Voice\OAIIntegration.



# Configuring the OAI Integration Server

Modify the configuration file to set how calls are handled in the integration.

## To configure the OAI Integration Server

- 1 From the Windows taskbar, click **Start > All Programs > Active Voice > OAI Integration > AVOAI Tray**.

The OAIS icon appears in the notification area, the system tray.

- 2 Right-click the OAIS icon, then click **Advanced**.

The OAIGear page appears.

### WARNING

If an error message appears indicating the service is not installed, close the error dialog box and continue with this procedure. The AV OAI Integration service will automatically install after the procedure is completed.

- 3 On the OAIGear toolbar, click the **Configuration File** icon.

The configuration file for the OAIS parameters appears in an XML editor.

- 4 In the navigation pane of the configuration file, expand CallPilot1 to configure the CallPilot.

In the navigation pane, under the CallPilot object, there are some predefined values for all parameters. Depending on the template chosen, set the following values:

**PBX-IP.** Enter the IP address of the phone system. The default value is only an example.

**PBX-Port.** Enter the OAI monitoring port of the phone system. The default value is 60030 for newer phone systems. Modify the default value only if you know that the phone system is set to a different value.

**Tenant.** PBX Tenant where the OAI pilot or AMNO number is defined physically. If using the OAI-UCD MCI LAN integration, this will be the tenant number where the UCD is configured. This value should match the setting in the phone system configuration. The default value is 1.

**Extension.** If the template that enable an OAI pure integration (NEC SV7000 - OAI Pure - No CCIS) was selected, enter the CallPilot OAI monitored extension or AMNO number. This extension is usually associated with the auto attendant and is a virtual number. In this case, this will be the monitored number that is called to access the voice messaging system. The default value is just an example.

If the template that enables an OAI UCD - MCI LAN integration (NEC SV7000 - OAI-UCD - MCI LAN) was selected, leave this field blank.

Leave all other parameters not listed above at their default values.

- 5 If the system uses Live Record, in the navigation pane of the configuration file, expand the LiveRecord node, and set the following parameters:

### NOTE

Skip this step if the system is not using the Live Record feature.

The OAI Live Record feature allows users to make real-time recordings of their own conversations. The values under this section must be configured to match the phone system settings of the phones used.

**Enabled.** This Enables/Disables the Live Record functionality. The default value is True.

**TMFC-Record.** Enter the Terminal Mode Function Code for the Record command for Live Record. The default value is 192 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-Pause.** Enter the Terminal Mode Function Code for the Pause command for Live Record. The default value is 193 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-ReRecord.** Enter the Terminal Mode Function Code for the ReRecord command for Live Record. The default value is 194 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-End.** Enter the Terminal Mode Function Code for the End command for Live Record. The default value is 195 as this is the predefined function in the phone system, but can be changed if needed.

**KC-Record.** Enter the OAI Key Code used for the Record command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 1.

**KC-Pause.** Enter the OAI Key Code used for the Pause/Resume command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 2.

**KC-Rerecord.** Enter the OAI Key Code used for the ReRecord command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 3.

**KC-End:.** Enter the OAI Key Code used for the End command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 4.

**ToggleStartStop.** This feature allows the user to press a single key to start, stop, or restart a Live Record session. To enable the feature, enter True. To disable the feature, enter False. The default value is True.

- 6 If using a template that enables the MCI-LAN integration, in the navigation panel of the configuration file, expand the MCI-LAN node.

#### NOTE

Do not complete this step if a template other than the NEC SV7000 - OAI-UCD-MCI LAN template, where the PBX cmd ASYDL Sys 1 Index 833 Bit 0 value = 1, was selected.

The settings must match the settings for the phone system for the MCI LAN connection.

**LAN-IP.** Enter the IP address of the phone system. This should be the same as the address entered in the CallPilot1 section under the PBX-IP. The default value is just an example and must be changed to match the phone system setting.

**Format.** Enter the format of the MCI-LAN packets expected from the phone system. Enter I C S for regular (ICS/IVS) packets, or I M X for expanded (IMX) packets. The default is IMX.

**Parity.** Enter the parity or checksum used by the phone system to process the MCI-LAN packets. Accepted values are **None**, **Even**, or **Odd**. The default is Odd.

**LocalPort.** Enter the local port used by the MCI-LAN integration module for a TCP/IP connection to the phone system. Accepted values are any valid TCP/IP port. The default is 60120. Do not change this value unless you know that this port is already taken by other applications on the UNIVERGE UM8500 server.

**DeviceID.** Enter the device ID used by the MCI-LAN integration module to identify itself to the MCI interface on the phone system. Accepted values are 0 and 1. The default is 1.

Leave all other parameters not listed above at their default values.

**7** In the navigation pane of the configuration file, expand VMSystem1 node.

Set the following parameters to configure the VMSystem1 node:

**Host.** Enter the IP address of the monitored UNIVERGE UM8500 server. This will be the same IP address entered previously in the configuration ini file. The default value is just an example.

**PortRange.** Enter the port or range of ports for the PBX tenant hosting the voice mail ports. Ports can be set by entering a single port number, for example x x x x; a range of numbers, for example x x x x – x x x x; or a combination or both, for example x x x x – x x x x , x. The default ports are just an example.

**Tenant.** Enter the PBX tenant number where the voice mail ports are set. The default value is 1.

Leave all other parameters not listed above at their default values.

**8** Click **File > Save** to save the XML configuration file.

**9** Install the OAI service and test the integration.

See [“Installing and starting the OAI service” on page 210](#).

# Installing and starting the OAI service

After saving the configuration file, install the OAI service then test the service to ensure a successful integration.

## To install the OAI Service

- 1 On the OAI Gear page, click the **Install Service** icon, or from the Service menu, click **Install Service**.
- 2 On the AV OAI Voice Mail Integration Server - Install Service dialog box, select the **This account** option.
- 3 Enter the domain Administrator name, type and confirm the domain Administrator password for the domain, then click **OK**.

### NOTE

It is recommended that the same domain administrator account that was used to install the UNIVERGE UM8500 software is entered. The Administrator name might need to be prefaced with the domain. For example, *<domain name>\Administrator*.

You can also choose to install the OAI Service under a Local System account, or even a different domain account, but this can cause difficulties when troubleshooting any subsequent integration problems.

- 4 Click **Start > All Programs > Administrative Tools > Services**.  
The Services MMC snap-in appears.
- 5 In the details pane, confirm that the AV OAI Integration Server service is listed.
- 6 Right-click **AV OAI Integration Server**, then click **Properties**.
- 7 On the General tab, ensure that the Startup type is **Automatic**.
- 8 Click the Recovery tab, then do the following:
  - Confirm that **Restart the Service** is selected for each failure attempt.
  - Enter 1 in the **Restart service after** field.
- 9 Click **OK** to exit the AV OAI Voice Mail Integration Server Properties dialog box.
- 10 Start the OAI Integration server using either of the following methods:
  - In the **Services MMC snap-in**, right-click **AV OAI Integration Server**, then click **Start**, or
  - Right-click **AV OAI Server** in the notification area, and then click **Start service**.

The icon changes from stop to start.

## Testing the OAI integration

After installing the service and setting up the parameters, test the integration to ensure that it works correctly.

## To test the OAI Integration Server

- 1 Place a direct call to the voice mail pilot number and confirm that is answering. Use a voice mail subscriber extension with a valid phone extension to place a call to the voice mail pilot number. You should hear: "Please Enter Your Password."
- 2 Leave a voice message for a test user that has an actual phone extension.
  - Confirm that the message indicator for the extension is on. This verifies that the MWI section of the configuration file was set properly.

- If the Message Count field in the MWI-OAI node of the configuration file was set to True, confirm that the message count is listed.
- 3 Retrieve the voice message and confirm that the message waiting indicator turns off and the phone display clears.





# NEC UNIVERGE SV8300 with IP Protims

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## In this integration...

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all equipment, phone system, and messaging system server requirements have been met. See “[Requirements](#),” below.

### 2 Program the phone system.

See “[Programming the phone system](#)” on page 216.

### 3 Configure UNIVERGE UM8500 for the integration.

See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 219.

## Requirements

The steps to set up the NEC SV8300 IP Protims integration require the following:

### Equipment

- All Dterm<sup>®</sup> IP phones that will be used with UNIVERGE UM8500 must have software version 1.2 or newer.

### SV8300 phone system

- UNIVERGE SV8300 software release 4.0 or newer installed and ready for the integration as described in the phone system documentation.
- Password encryption type for IP extensions is MD5, see command CM08 YY=517 on 0.
- Fully functional IP PAD cards with VCTI sub-boards.

#### NOTE

IP PAD cards provide interface function between IP telephony, terminals or other devices on LAN, and non-IP telephony, conventional networks such as PSTN, ISDN, and private networks.

### UNIVERGE UM8500 server

- If the phone system uses G729 codec, the Sipro Lab G729A codec driver must be installed on the messaging system server. The installation file for this driver is named sl\_g729a\_setup.exe and can be found in the Voice Mail\Utilities folder on the *Installation* disc.
- A system key that enables the integration and the appropriate number of voice messaging ports.



# Integration description

## How the integration works

SV8300 IP Protims integration uses a network connection to connect messaging system server with the phone system. Each voice messaging port emulates an IP Terminal extension. The communication between the parties is facilitated by a series of Voice Over IP (VOIP) protocols, such as DRS, Protims, RTP, H245, Voice control, used for call signaling and voice streaming, some of them being NEC proprietary protocols.

## Integration features

The SV8300 IP Protims integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration's performance can be affected.

## NOTE

The following procedures are written with the assumption that you will use the SV8300 PCPro Software to program the phone system.

## To program the IP voice messaging ports in the phone system

- 1 Make sure that the SV8300 phone system has licenses for using IP extensions using command F88 and the information in the following table:

For	Use
VoIP Channels	F88>010
IP Trunk	F88>011
IP Ports	F88>012
SIP TRK Channels (if used)	F88>017
STD SIP Phone (if used)	F88>024
SIP Trunk (if used)	F87>173

The following example can be used as a guideline for setting up IP or passwords:

CM 08>516>*x* sets whether or not you want to use a password for IP station login (usually same as extension)

CM 0B00>00>*ip address of VOIP*

CM 0B00>01>*voip subnet*

CM 0B00>02>*voip gateway*

CM 0B2*xx*>00>*IPLA addresses* (where *xx* is the unit number)

CM1290>*ip\_ext*>*CCC* clears the MAC address of phones so a different phone can log on to that extension.

- 2 Configure the voice messaging ports as IP Terminal extensions, the default IP extensions type.

The following example reflects programming eight ports, 3901-3907, and the VM pilot, 3999. Use this example as guide for programming the PBX:

a CM 10-01>F3900-F3907 Assigns station numbers (VM Ports)

b CM 11>0000>3999 Assigns the VM pilot as a virtual number

c CM E50>3999>0 Makes Busy the VM Pilot number

d CM 1324>Sta#(3900-3907)>0 DTMF passing SIP to IP DTerm

e CM 1359>Sta#(3900-3907)>0 DTMF passing SIP to IP DTerm

f CM 1303>(all stations - not the voicemail ports)>0 Allows MWI

g CM 08>517>0 MD5 encryption

CM 08>702>0

h CM 08>703>0

CM 08>704>0

CM 08>706>0

CM 08>710>0

i Build UCD Group:

CM 170>3999>3900 Create a loop pointing Pilot to first Port

- CM 170>3900>3901 Point each port to the next.
- CM 170>3901>3902 CM 170>3902>3903
- CM 170>3903>3904 CM 170>3904>3905
- CM 170>3905>3906 CM 170>3906>3907
- CM 170>3907>3999 Finally point last port back to pilot.
- j** CM 171>3999>1 Assigns Pilot number as a UCD Pilot
- k** Assign Pilot and ports to a UCD group number:
- CM 172>3999>00
- CM 172>3900>00
- CM 172>3901>00
- CM 172>3902>00
- CM 172>3903>00
- CM 172>3904>00
- CM 172>3905>00
- CM 172>3906>00
- CM 172>3907>00
- l** CM 5115>01>3999 Assigns the UCD Pilot number to the tenant number
- m** CM 5110>01>3999
- n** CM 5118>01>3999
- o** CM 200>\*9>A040 Allows MWI lamp ON (example of code)
- p** CM 200>#9>A041 Allows MWI lamp OFF (example of code)
- q** CM 200>\*4>A006 Allows executive override for Live Record - If needed (example of code)
- r** CM 9000>xxxx,01>xxxx Sets the prime line on button 1, where xxxx is the IP extension numbers (3901-3907 in this example)
- s** Enable VM Softkeys:
- CM 1337>3900>0 Enables VM Softkey feature for VM Ports only
- CM 1337>3901>0
- CM 1337>3902>0
- CM 1337>3903>0
- CM 1337>3904>0
- CM 1337>3905>0
- CM 1337>3906>0
- CM 1337>3907>0
- t** CM 08>715>0 Enable Softkey call screening system wide
- 3** Make sure that the following service features are enabled in the phone system:
- Call hold
  - Assignment of no answer timer for blind transfer to station or blind transfer attendant
  - Blind transfer
- 4** Set the same location ID for all voice messaging ports and set either or both of the codecs G711, U-Law or A-Law, and G729A with any payload your system may need (10, 20, 30, or 40).

Use the following example:

#### Priority Codec List

CM 42>100>priority codec 1 for codec list 0 (G.711u, G.711a, G.722 (wide band), G.723.1, G.729a)

CM 42>101>priority codec 2 for codec list 0 (G.711u, G.711a, G.722 (wide band), G.723.1, G.729a)

CM 42>102>priority codec 3 for codec list 0 (G.711u, G.711a, G.722 (wide band), G.723.1, G.729a)

CM 42>103>priority codec 4 for codec list 0 (G.711u, G.711a, G.722 (wide band), G.723.1, G.729a)

CM 42>110>priority payload 1 for codec list 0 (10ms, 20ms, 30ms, 40ms)

CM 42>111>priority payload 2 for codec list 0 (10ms, 20ms, 30ms, 40ms)

CM 42>112>priority payload 3 for codec list 0 (10ms, 20ms, 30ms, 40ms)

CM 42>113>priority payload 4 for codec list 0 (10ms, 20ms, 30ms, 40ms)

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **IP Protims**.
- 4 If the setting is not **IP Protims**, contact a sales representative for the necessary system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, integration features might not be enabled.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	UNIVERGE SV8300
Switch Software Version	DTerm-IP Ports
Integration	VOIP-PROTIMS

- 6 Enter the MWI analog codes that the SV8300 phone system uses for turning the phones lamps on and off. Save the changes.
- 7 Stop UNIVERGE UM8500.
- 8 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 9 Enter IP address of the phone system.
- 10 Set the general functionality for the ports as Terminal.
- 11 Under **Manage ports**, click **Add** to add a new port.  
Enter the Extension and Password for each port.
- 12 If the system uses one or more IP PADs, under Manage Gateways click **Add**.  
Enter the IP Address and set the **Has DSP** to 0 for each gateway.
- 13 Click **OK** to save the changes and then close VOIPAdmin.
- 14 Start UNIVERGE UM8500.
- 15 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 16 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page. If the extensions are incorrect, stop UNIVERGE UM8500, verify the phone system settings made for the voice messaging ports, see [“To program the IP voice messaging ports in the phone system” on page 216](#), and use the VOIPAdmin tool to make the necessary adjustments.



# ■ NEC UNIVERGE SV8300 using OAI

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# Integration overview

UNIVERGE UM8500 uses the Open Application Interface (OAI) to integrate with NEC phone systems using a TCP/IP link between the messaging system server and the phone system. OAI Integration can be used with IP lines and requires that the OAI Integration server is installed.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone systems and messaging system server requirements have been met. See [“Requirements” on page 223](#).
- 2 Program the phone system and extensions.**  
See [“Programming the phone system” on page 225](#).
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration” on page 228](#).
- 4 Install the OAI Integration Server software.**  
See [“Installing the OAI Integration Server software” on page 229](#).
- 5 Configure the OAI Integration Server.**  
See [“Configuring the OAI Integration Server” on page 230](#).
- 6 Install and start the OAI service.**  
See [“Installing and starting the OAI service” on page 233](#).



## Requirements

The steps to set up the NEC UNIVERGE SV8300 using OAI integration require the following:

### Phone System

- A UNIVERGE SV8300 phone system
- A network connection to the messaging system server.
- One IP terminal port for each voice messaging port.

### UNIVERGE UM8500 server

- A network connection with the phone system. A second network card on the messaging system server to connect directly to the phone system is recommended.
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- OAI Integration server installed.
- A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

The UNIVERGE UM8500 unified messaging solution can use the Open Application Interface (OAI) to integrate with NEC phone systems including UNIVERGE SV8300. The OAI integration is established over a TCP/IP link between the messaging system server and the NEC phone system.

## How the integration works

There are two basic types of OAI integrations:

- **OAI pure integration** . This type of integration uses only the TCP/IP link to connect to the phone system. It has an OAI monitoring slot opened with the phone system and dispatches calls to the enabled voice messaging systems. This type of OAI Integration provides the most efficient load balancing capability by dispatching new incoming calls from a monitored number, the voice mail pilot, to free voice mail ports.
- **OAI UCD - Serial MCI integration** . The OAI Integration Server uses complementary Message Center Interface (MCI) integration capabilities through the serial interface. The complementary MCI integration feature of the OAI Integration Server is not a genuine OAI integration. The integration does work in Common Channel Interoffice Signaling (CCIS) networked environments between multiple NEC phone systems when the remote phone systems do not have OAI or their software revision does not feature call-forwarding information in the OAI layer. The MCI link is used as complementary integration support for situations where the OAI layer does not provide full integration, such as in older, legacy phone system environments.

## Integration features

The SV8300 OAI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting**. When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID**. UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access**. A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging**. UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI)**. When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.
- **Live Record**. A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration's performance might be affected.

## NOTE

The following procedures are written with the assumption that you will use the SV8300 PCPro software to enter the settings presented in the procedures.

## To set the Message Center Interface (MCI) configuration

### IMPORTANT

Only adjust the MCI settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

- 1 **Verify that the 9800,8,n,1 serial communication parameter settings are set as described in the table below. If a parameter is not the same, change it to the setting in the table.**

Command	Description
0401>01>0	Connection port for MCI = 0
08>708>0	MCI extension length = 6 (!)
08>025>0	Message indication = MESSAGE
08>443:1-0	Set the type of VMS integration: MCI (0) instead of DTMF (1) (!)
4000>0>10	Function = MCI
4001>0>1	Data length = 8 bit
4002>0>1	Parity check = Ineffective
4004>0>0	Stop bit = 1
4008>0>4	Data speed = 9600 bps

## To set the OAI configuration

Verify the following configurations and settings.

- 1 **Verify that the IP Address is set per the phone system configuration, Example 172.16.19.61.**
- 2 **Verify that the Subnet mask is set per the phone system configuration, Example 255.255.255.0.**
- 3 **Add the non-default extensions lines (non-default hardware LENS): 224-239.**
- 4 **Verify that the OAI pilot is set per the phone system configuration, for example 299.**
- 5 **Verify that the monitored extensions or voice ports are set per the phone system configuration, for example 208-231.**
- 6 **Verify that the monitored DTerm Function Keys on extension 201 set per the phone system configuration, for example 09-12 (function codes F1032-F1035; Terminal Mode Facility codes 192-195).**

**7 Verify that the OAI monitoring slot 60030, in the OAI server configuration according to the OAI XML template chosen, is set to:**

Command	Description
OB00>00>172016019061	Assign IP address: 172.16.19.61
OB00>01>255255255000	Assign subnet mask: 255.255.255.0
10>024>224 10>025>225 10>026>226 through 10>039>239	Add non-default hardware LENS for the range 224-239
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
11>000>299	Assign subline 299 (OAI pilot) to LEN 000
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
171>299:3 171>208:3 171>209:3 171>210:3 through 171>231:3	Program the OAI pilot (299) and the voice ports (208 - 231) as monitored numbers.
<b>NOTE</b> Do not run the following command if the OAI UCD - Serial MCI integration method is used.	
172>299:NONE-00	Set the 299 as member of the Group 00 (other than any other UCD group - 01)
D70>F1032>NONE-192 D70>F1033>NONE-193 D70>F1034>NONE-194 D70>F1035>NONE-195	Assign Terminal Mode Facility (TMF) codes to OAI monitored function keys; the available OAI monitored function keys are in the range of F1032-F1047 (16 keys); the available TMF codes are in the range of 192-255;
9000>201,09>F1032 9000>201,10>F1033 9000>201,11>F1034 9000>201,12>F1035	Assign the function codes F1032-F1035 to DTerm function keys 09-12, for extension 201; For the ',' (comma) press the <Transfer> button;
08>045>0	Executive Override beep: 0 = play only one beep on initiation 1 = beep every 4 seconds
08>046>0	Executive Override beep: 0 = disable Executive Override beep 1 = enable Executive Override beep

## To set the UCD hunt group configuration

### IMPORTANT

Only adjust the UCD hunt group settings if the OAI UCD with Serial MCI integration is being used.

Verify the following configurations and settings.

**1 Verify that the UCD group is set to: 220-223.**

**2 Verify that the UCD pilot is set to: 220.**

Command	Description
170>220:NONE-221	Set up the 220-223 range as a UCD hunt group.
170>221:NONE-222	
170>222:NONE-223	
170>223:NONE-220	
172>220:NONE-01	Set the 220-223 range as part of Group 01, other than the OAI group (00) of the monitored number(s).
172>221:NONE-01	
172>222:NONE-01	
172>223:NONE-01	
171>220:0-1	Set extension 220 to be the UCD pilot (master).
1310>220:0	Set the 220-223 range as messaging system (VMS) stations (for MCI / J-records appearance).
1310>221:0	
1310>222:0	
1310>223:0	

## To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following settings or that the configuration files are updated.

**1 The OAI LiveRecord feature uses the following settings by default.**

### WARNING!

If these defaults are changed, the corresponding settings in the OAI Integration Server must be set up accordingly by editing the XML configuration file.

Dterm Function Key	Function Code	Terminal Mode Facility (TMF) Code	LiveRecord Function
09	F1032	192	Record
10	F1033	193	Pause/Resume
11	F1034	194	Re-record
12	F1035	195	End

**2** When using LiveRecord, the monitored extensions or voice ports are allowed to use Executive-Override with the LiveRecord feature. Normally, the OAI monitoring is set by CMD17,Y=1, Extension>3, but this value will automatically activate the Off-Hook Suppress bit. Instead, the UNDOCUMENTED value of 4 that will take the Off-Hook Suppress OFF is used.

**3** The Executive Override code programmed on the command 200>A4>A006, for example, should match the BargeInCode parameter setting in the UNIVERGE UM8500 integration file. In this case the code is \*4 and the UM8500 entry is BargeInCode = X,&,\*4.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To select the INI file

- 1 Shut down UNIVERGE UM8500 before setting the following parameters.
- 2 Click **Start > Programs > UNIVERGE UM8500 group > Edit Switch Utility**.

Ensure that the current phone system settings are correct according to the phone system version and port types.

### Phone settings for OAI integrations with IP ports

Parameter	Required setting
Manufacturer	NEC
Model	UNIVERGE SV8300
Specific version or country	DTERM IP Ports
Integration method	OAI

- 3 If the current settings are not correct, select the correct ones and then click **Edit this switch configuration**. Write down the name of the ini file that is listed in the title bar. Click **OK** to close this window.
- 4 Click **Update Voice Mail Now** to apply the changes and close Edit Switch utility.

## To update the INI file

- 1 Using Windows Explorer on the UNIVERGE UM8500 server, go to the CommServer\IntLib directory.
- 2 Use a text editor to open the corresponding configuration INI file noted in the previous procedure.
- 3 In the [Configuration] section, modify the NetIP1 value:
  - Replace the NetIPI with the exact IP address that the computer is using to access the same LAN as the phone system. For example:  
NetIP1=172.16.19.191.
  - The NetIP1 = the IP address of the computer where UNIVERGE UM8500 is installed; the default value is set to "localhost" but it should be changed because it is possible for the server machine to have more than one network interface.
- 4 Click **File > Save**, and then close the configuration INI file.

# Installing the OAI Integration Server software

Before configuring the OAI integration, the OAI integration software must be installed on the computer where the messaging system is installed.

## To install the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration folder on the disc.
- 4 Click setup.exe, then click **Open**.
- 5 In the Run dialog box, click **OK**. The installation wizard begins.
- 6 On the Welcome page, click **Next**.
- 7 On the Customer Information page; if the **User Name** and **Customer Name** fields do not have your information, enter your information into the fields. Select an option indicating whether or not you or anyone else who uses the computer has access to the program. Click **Next**.
- 8 On the Setup Type page, confirm that **Typical** is selected, then click **Next**.
- 9 On the Start Copying Files page, click **Next**.
- 10 When setup is complete, click **Finish**.

A new Program Group, Active Voice, is added to the program list. Two new applications are added to this program group: AvOAIGear and AvOAITray. These applications are used to set up the OAI integration parameters.

## To choose a predefined template for the integration in the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration\OAI Server XML Templates\Single Server folder on the disc. This will show a group of folders that contain predefined sets of XML configuration files meant to help choose the best OAI configuration.

Open the appropriate folder for the integration.

- For UNIVERGE SV8300 phone systems using OAI pure integration, open the **NEC IPS 2000 - OAI Pure - No CCIS** folder.
- For UNIVERGE SV8300 phone systems using OAI UCD - Serial MCI integration, open the **NEC IPS 2000 - OAI -UCD - MCI** folder.

### NOTE

The files used for the UNIVERGE SV8300 OAI integration are the same as those used for the NEC IPS 2000 OAI integration.

- 4 From the selected folder, copy and replace the existing AvOAISvr.xml file to the **Program Files\Active Voice\OAI Integration** folder on the UM8500 server.

The Program Files folder is usually found on the partition where Microsoft Windows was first installed, for example: C:\Program Files\Active Voice\OAIIntegration.

# Configuring the OAI Integration Server

Modify the configuration file to set how calls are handled in the integration.

## To configure the OAI Integration Server

- 1 From the Windows taskbar, click **Start > All Programs > Active Voice > OAI Integration > AVOAI Tray**.

The OAIS icon appears in the notification area of the system tray.

- 2 Right-click the OAIS icon, then click **Advanced**.

The OAIGear page appears.

### WARNING!

If an error message appears indicating the service is not installed, close the error dialog box and continue with this procedure. The AV OAI Integration service will automatically install after the procedure is completed.

- 3 On the OAIGear toolbar, click the **Configuration File** icon.

The configuration file for the OAIS parameters appears in an XML editor.

- 4 In the navigation pane of the configuration file, expand CallPilot1 to configure the CallPilot.

In the navigation pane, under the CallPilot object, there are some predefined values for all parameters. Depending on the template chosen, set the following values:

**PBX-IP:** Enter the IP address of the phone system, or if the phone system is connected to the same LAN as the UM8500 server through a different network interface card, enter the IP address of the network interface card. The default value is only an example.

**PBX-Port:** Enter the OAI monitoring port of the phone system. The default value will be 60030 for a UNIVERGE SV8300 phone system. Modify the default value only if you know that the phone system is set to a different value.

**Tenant:** PBX Tenant where the OAI pilot or AMNO number is defined physically. If the integration is MCI based, this will be the tenant number where the UCD is configured. This value should match the one in the phone system configuration. The default value is 1.

**Extension:** If one of the templates that enables an OAI UCD - MCI Serial integration, such as NEC IPS 2000 - OAI-UCD - MCI was selected, this field can be left blank according to the predefined settings.

If one of the templates that enables an OAI pure integration, such as NEC IPS 2000 - OAI Pure - No CCIS, was selected, then enter the CallPilot's OAI monitored extension. If the extension is a virtual number associated with the auto attendant, this will be the monitored number that is called to access the voice messaging system. The default value is just an example.

Leave all other parameters on their default values.

- 5 If the system is using the Live Record feature, in the navigation pane of the configuration file, expand the LiveRecord node, and set the following parameters:

### NOTE

Skip this step if the system is not using the Live Record feature.

The OAI Live Record feature allows users to make real-time recordings of their own conversations. The values under this section must be configured to match the phone system settings of the phones used.

**Enabled:** This Enables/Disables the Live Record functionality. The default value is True.



**TMFC-Record:** Enter the Terminal Mode Function Code for the Record command for Live Record. The default value is 192 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-Pause:** Enter the Terminal Mode Function Code for the Pause command for the Live Record. The default value is 193 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-ReRecord:** Enter the Terminal Mode Function Code for the ReRecord command for Live Record. The default value is 194 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-End:** Enter the Terminal Mode Function Code for the End command for Live Record. The default value is 195 as this is the predefined function in the phone system, but can be changed if needed.

**KC-Record:** Enter the OAI Key Code used for the Record command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 1.

**KC-Pause:** Enter the OAI Key Code used for the Pause/Resume command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 2.

**KC-Rerecord:** Enter the OAI Key Code used for the ReRecord command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 3.

**KC-End:** Enter the OAI Key Code used for the End command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 4.

**ToggleStartStop:** This feature allows the user to press a single key to start, stop, or restart a Live Record session. To enable the feature, enter True. To disable the feature, enter False. The default value is True.

- 6 If using a template that enables the OAI UCD-MCI serial integration, in the navigation panel of the configuration file, expand the MCI-Serial node.

#### NOTE

Do not complete this step if a template other than the NEC IPS 2000 OAI-UCD-MCI template or the NEC 2000 IVS-OAI-UCD-MCI template was selected.

The settings must match the settings of the phone system for the MCI Serial connection.

**Format:** Set the format of the MCI-Serial packets expected from the phone system. Enter **I C S** for regular (ICS/IVS) serial packets, or **I M X** for expanded (IMX) packets. The default is ICS.

**COMPort:** Enter the COM number of the serial port. This is the voice server serial port that is connected by the RS-232 cable to the MCI link on the phone system. Accepted values are **COM1** or **COM2**. The default is COM1.

**BaudRate:** Enter the baud rate used by the serial (RS-232/MCI) communication. The value must be identical to the phone system setting. Accepted values are **1200**, **2400**, **4800**, **9600**, or the specially defined phone system setting. The default value is 9600.

**DataBits:** Enter the default phone system data bits. Accepted values are **4**, **5**, **6**, **7**, or **8**. The default value is 8.

**Parity:** Enter the parity used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **N** for NONE, **E** for EVEN, or **O** for ODD. The default value is N.

**StopBits:** Enter the stop bits used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **1**, **1.5**, **2**, or the specially defined phone system setting. The default value is 1.

Leave all other parameters not listed above at their default values.

- 7 In the navigation pane of the configuration file, expand VMSystem1 node.

Set the following parameters to configure the VMSystem1 node:

**Host:** Enter the IP address of the monitored UM8500 server. This will be the same IP address entered previously in the configuration ini file. The default value is just an IP example.

**PortRange:** Enter the port or range of ports for the phone system tenant hosting the voice mail ports. Ports can be set by entering a single port number, for example x x x x; a range of numbers, for example x x x x - x x x x; or a combination or both, for example x x x x - x x x x , x. The default ports are just an example.

**Tenant:** Enter the phone system tenant number where the voice mail ports are set. The default value is 1.

Leave all other parameters not listed above at their default values.

- 8 Click **File > Save** to save the XML configuration file.
- 9 Install the OAI service and test the integration. See [“Installing and starting the OAI service” on page 233](#).

# Installing and starting the OAI service

After saving the configuration file, install the OAI service then test the service to ensure a successful integration.

## To install the OAI Service

- 1 On the OAI Gear page, click the Install Service icon, or from the Service menu, click **Install Service**.
- 2 On the AV OAI Voice Mail Integration Server - Install Service dialog box, select the **This account** option.
- 3 Enter the domain Administrator name, type and confirm the domain Administrator password for the domain, then click **OK**.

### NOTE

It is recommended that the same domain administrator account that was used to install the messaging system software is entered. The Administrator name might need to be prefaced with the domain. For example, <domain name>\Administrator. You can also choose to install the OAI Service under a Local System account, or even a different domain account, but this can cause difficulties when troubleshooting any subsequent integration problems.

- 4 From the Windows taskbar, click **Start > All Programs > Administrative Tools > Services**.

The Services MMC snap-in appears.

- 5 In the details pane, confirm that the AV OAI Integration Server service is listed.
- 6 Right-click **AV OAI Integration Server**, then click **Properties**.
- 7 On the General tab, ensure that the Startup type is **Automatic**.
- 8 Click the Recovery tab and then do the following:
  - Ensure that **Restart the Service** is selected for each failure attempt.
  - Enter 1 in the **Restart service after** field.
- 9 Click **OK** to exit the AV OAI Voice Mail Integration Server Properties dialog box.
- 10 Start the OAI Integration server using either of the following methods:
  - In the **Services MMC snap-in**, right-click **AV OAI Integration Server**, then click **Start**, or
  - Right-click the **AV OAI Server** in the notification area, and then click **Start service**.

The icon changes from stop to start.

## Testing the OAI integration

After installing the service and setting up the parameters, test the integration to ensure that it works correctly.

## To test the OAI Integration Server

- 1 Place a direct call to the voice mail pilot number and confirm that is answering. Use a voice mail subscriber extension with a valid phone extension to place a call to the voice mail pilot number. You should hear: "Please Enter Your Password."
- 2 Leave a voice message for a test user that has an actual phone extension.
  - Confirm that the message indicator for the extension is on. This verifies that the MWI section of the configuration file was set properly.

- If the Message Count field in the MWI-OAI node of the configuration file was set to True, confirm that the message count is listed.
- 3 Retrieve the voice message and confirm that the message waiting indicator turns off and the phone display clears.

# ■ NEC UNIVERGE SV8500 with Direct Digital

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 238.
- 3 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 239.

## Requirements

The steps to set up the NEC UNIVERGE USV8500 direct digital integration require the following:

### Phone system

- NEC UNIVERGE SV8500, revision S01 or later, installed and ready for the integration as described in the phone system documentation.
- One or more of the following digital line cards set up as voice messaging ports connected to the voice boards in the messaging system server:

Card name	Description
16ELCH (with SP-3125)	Digital line card, 16 ports
16ELCJ	Digital line card, 16 ports
16ELCJ-B	Digital line card, 16 ports
16ELCJB-A	Digital line card, 16 ports
16ELCNA	Digital line card, 16 ports

#### CAUTION

Use only the black and yellow pair of wires. The RJ-14 connectors on the Dialogic D42-NE2 voice board use only a single pair of wires.

### UNIVERGE UM8500 server

- The Dialogic digital voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

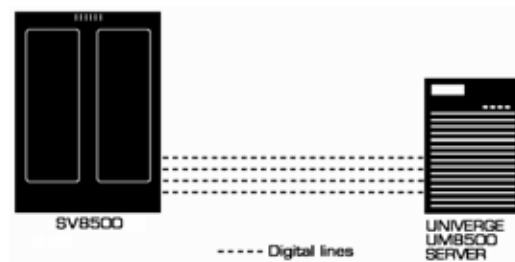
For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

The SV8500 direct digital integration uses digital lines to connect the phone system and messaging system server. The phone system digital voice messaging ports connect to the D42-NE2 boards in the messaging system server. Each D42-NE2 voice board emulates up to four Dterm<sup>®</sup> digital phones. The following illustration shows the required connections.



The phone system sends the following information with forwarded calls:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The SV8500 direct digital integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook<sup>®</sup> or other desktop messaging application.
- **Constant message count.** The number of new messages is displayed on a subscriber's Dterm phone while the phone is on hook.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch software version	HDS R4 and later without MCI
Integration	Direct Digital

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.



# Programming the phone system

If programming options other than those described in the following procedures are used, the integration's performance can be affected.

## NOTE

The following procedures are written on the assumption that you will use the SV8500 PCPro software to program the phone system.

## To program the digital voice messaging ports in the phone system

- 1 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports by using the ASFC command. It is recommended that all of the voice messaging ports be placed in a single SFC not used for any other purpose. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of **26** to the Telephone Equipment Class (TEC) for each voice messaging port by using the ASDT command. Use the SFC created for the voice messaging ports in step 1.

- 3 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group.

If the number of voice messaging system ports exceeds the number of supported ports in a UCD group, specify additional UCD groups, then link them together using the AUOG command.

- 4 Program each phone to forward calls to the UCD pilot number assigned to the voice messaging ports, based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy; or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when the extension is busy.

## CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 5 Use the programming system data table to program the ASYD settings. Each bit is part of a hexadecimal number displayed in the ASYD settings. Convert the hexadecimal number to binary to determine the individual settings. For more information, refer to the *SV8500 Office Data Specification*.

#### Programming system data

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Calling station status display enabled
	238	b0–7	0	Lamp flash rate

#### To program the Dterm phones that use Live Record

For each Dterm phone that uses the UNIVERGE UM8500 Live Record feature, perform the following steps:

- 1 Assign an SFI of **118** by using the ASFC command.
- 2 Assign the extension to the UCD pilot number of the voice messaging ports by using the AVPS command. Enter the UCD pilot number for the VPS STN.
- 3 Designate the following function key assignments by using the AKYD command:

Function key number	Function
66	Record
67	Re-record
68	Pause
69	End



# NEC UNIVERGE SV8500 with IP Protims

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all equipment, phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 244.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 245.

## Requirements

The steps to set up the NEC SV8500 IP Protims integration require the following:

### Equipment

- All Dterm<sup>®</sup> IP phones that will be used with UNIVERGE UM8500 must have software version 1.2 or newer.

### SV8500 phone system

- UNIVERGE SV8500 installed and ready for the integration as described in the phone system documentation.
- Password encryption type for IP extensions is MD5, see command ASYDL, index 848, b7=0.
- Fully functional IP PAD cards with VCTI sub-boards.

#### NOTE

IP PAD cards provide interface function between IP telephony, terminals or other devices on LAN, and non-IP telephony, conventional networks such as PSTN, ISDN, and private networks. If the telephony network is 100% IP, the IP PAD cards are not mandatory.

### UNIVERGE UM8500 server

- If the G729 codec is used, the Sipro Lab G729 codec driver must be installed in the voice mail server. The installation file for this driver is named `sl_g729a_setup.exe` and can be found in the Voice Mail\Utilities folder on the *Installation disc*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

### How the integration works

SV8500 IP Protims integration uses a network connection to connect messaging system server with the phone system. Each voice messaging port emulates an IP-VPS extension. The communication between the parties is facilitated by a series of Voice over IP (VOIP) protocols, such as DRS, Protims, RTP, H245, Voice control, used for call signaling and voice streaming, some of them being NEC proprietary protocols.

### Integration features

The SV8500 IP Protims integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system. This information displays in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

If programming options other than those described in the following procedures are used, the integration's performance might be affected.

## NOTE

The following procedures are written on the assumption that you will use the SV8500 PCPro Software to program the phone system.

## To program the IP voice messaging ports in the phone system

- 1 Make sure that the SV8500 phone system has licenses for using IP extensions by using the DPTR command.
- 2 Configure the voice messaging ports as IP-VPS extensions by using the AISTL command to set "KIND = IP VPS" and "TEC = 26."

Assign the ports successive VPS channels, starting with "IP VPS CH = 0."

- 3 Write down the VPS ID value of the voice messaging ports, for use during the UM8500 installation. Enter the value when the UNIVERGE UM8500 installation wizard asks for this value.

## CAUTION

All voice messaging ports must have the same value assigned for VPS ID.

- 4 Write down the MWI analog codes that the SV8500 phone system uses for turning the phones lamps on and off. These codes are needed when configuring UM8500 to work with the integration.

## NOTE

The SV8500 phone system may not have any settings made to use codes for MWI analog operations. If this is the case, use the ANPD and ASPA commands to set "SRV=SSCA" and "SIDA=54 / 55."

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports by using the ASFC command. It is recommended that all of the voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using the ASHU command.
- 7 Set the same location ID for all voice messaging ports and set either or both of the codecs G711, U-Law or A-Law, and G729A with payload size equal to 40 milliseconds for that location ID using the commands ALOCL and AIVCL.

## NOTE

To associate the voice messaging ports with a specific location, add the IP address of the messaging system server to that location.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **IP Protims**.
- 4 If the setting is not **IP Protims**, contact a sales representative for the necessary system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, integration features might not be enabled.

### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	UNIVERGE SV8500
Switch Software Version	IP Protims ports display like DTERM_E IP Protims ports display like DTERM_III
Integration	VOIP-Protims

#### NOTE

The software version used depends on the phone system settings. Check the parameter ASYDL 672. If bit b1=1, the software version must be "IP Protims ports display like DTERM\_E". Otherwise, the software version must be "IP Protims ports display like DTERM\_III".

- 6 Enter the MWI analog codes that the SV8500 phone system uses for turning the phones lamps on and off. Save the changes.
- 7 Stop UNIVERGE UM8500.
- 8 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 9 Enter IP address of the phone system.
- 10 Set the general functionality for the ports as VPS and enter the VPS number.
- 11 Under Manage ports, click **Add** to add a new port.
  - Enter the Extension, Password, and VPS channel for each port.
- 12 If the system uses one or more IP PADs, under Manage Gateways click **Add**.
  - Enter the IP Address and set the Has DSP to 0 for each gateway.
- 13 Click **OK** to save the changes and then close VOIPAdmin.
- 14 Start UNIVERGE UM8500.
- 15 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).

- 16 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page. If the extensions are incorrect, stop UM8500, verify the PBX settings made for the voice messaging ports, see [“To program the IP voice messaging ports in the phone system” on page 244](#), and use the VOIPAdmin tool to make the necessary adjustments.





# NEC UNIVERGE SV8500 with LAN MCI

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 250.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring the UNIVERGE UM8500 for integration](#)” on page 254.

## Requirements

The steps to set up the NEC UNIVERGE SV8500 Message Center Interface (MCI) integration with a LAN interface require the following:

### Phone System

- A SV8500 phone system with LAN MCI.
- A network connection to the UNIVERGE UM8500 server.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Digital	One digital station port for each voice messaging port.
IP-VPS	One IP-VPS port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port.

### UNIVERGE UM8500 server

- A network connection with the phone system.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

- For the latest information on supported voice boards for UM8500, contact a sales representative.
  - No voice boards are required if IP-VPS or IP Terminal ports are used.
- 
- UNIVERGE UM8500 installed and ready for the integration as described in the *Installation Guide*.
  - A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

## How the integration works

The LAN MCI integration uses a network connection to transmit the integration information between UNIVERGE UM8500 server and the phone system.

The phone system sends the following information through the LAN connection:

- The extension of the called party
- The extension of the calling party, for internal calls, or the phone number of the calling party if it is an external call and the system uses caller ID
- The reason for the forward, for example the extension is busy, does not answer, or is set to forward all calls

UM8500 uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the personal greeting of the subscriber. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

The UM8500 systems controls message indications by sending on and off codes to the phone system through the LAN connection.

## Integration features

The LAN MCI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

### NOTE

The MWI over CCIS through LANMCI integration only works if a closed numbering plan is used.

# Programming the phone system

If programming options other than those specified in the following procedure are used, the integration performance might be affected.

## NOTE

The following procedures are written on the assumption that you will use the SV8500 PCPro software to program the phone system.

## Programming the phone system steps

- 1 **Program the voice messaging ports.** The procedure used depends on the port type the system is using.
  - For digital ports, see [“To program the digital ports” on page 250.](#)
  - For IP-VPS ports, see [“To program the IP-VPS ports” on page 250.](#)
  - For IP Terminal ports, see [“To program the IP Terminal ports” on page 251.](#)
- 2 **Program the phone system**  
Complete programming the phone system. See [“To complete programming the phone system” on page 252.](#)

## To program the digital ports

- 1 Specify a Service Feature Restriction Class (SFC) for all voice messaging ports using the ASFC command.

The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of **26** to the Telephony Equipment Class (TEC) for each voice messaging port using the ASDT command. Use the SFC previously created.
- 3 Assign all voice messaging ports to a UCD group.
- 4 Complete programming the phone system. See [“To complete programming the phone system” on page 252.](#)

## To program the IP-VPS ports

- 1 Make sure that the SV8500 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP-VPS extensions using AISTL command, KIND=IP VPS, TEC = 26.
- 3 Assign the IP-VPS NO. and assign successive IP-VPS channels, starting with IP-VPS CH= 0.
- 4 Write down the IP-VPS NO. and IP-VPS CH value of the voice messaging ports, so the value is available when the UNIVERGE UM8500 installation wizard asks for it.

## CAUTION

- All voice messaging ports must have the same value assigned for IP-VPS NO.
- Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using ASHU command.

#### NOTE

If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the ALGSN, ASHUN commands.

#### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 7 Complete programming the phone system. See [“To complete programming the phone system” on page 252](#).

## To program the IP Terminal ports

- 1 Make sure that the SV8500 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP Terminal extensions using the AISTL command, KIND=IP DTERM, TEC = 12.
- 3 Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.
- 4 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 5 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group (see command ASHU).

#### NOTES

- Logical numbers appear only in a NEC Fusion network and are used to uniquely identify all the extensions in the network.
- If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the commands ALGSN, ASHUN.

**CAUTION**

Do not use a phantom single line extension for the UCD pilot number.

- 6 Complete programming the phone system. See [“To complete programming the phone system” on page 252.](#)

### To complete programming the phone system

- 1 Set the interface type for MCI to LAN using command ASYDL, index 833, bit b0 and b1 must be set to 1.

**NOTE**

In a NEC Fusion network, the phone system that contains the extensions of the voice messaging ports must be the one that also sends the integration data to the UNIVERGE UM8500 through the LAN MCI module.

- 2 Program each phone to forward calls to the UCD pilot number assigned to the voice messaging ports based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when extension is busy.

#### Programming system data ASYD

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
		b5	1	MWI controlled by MCI
	34	b1–4	0	Set output to no parity and 1 stop bit
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Called station status display enabled
	238	b0–7	0	Lamp flash rate
	246	b3	0	MCI expansion set to normal
	400	b2	1	Calling number information sent to MCI
2	6	b0	1	MCI in service when terminating to a UCD group
	7	b1	0	MCI out of service when terminating to attendant console

#### Programming system data local data ASYDL

System	Index	Bit	Value	Description
1	641	b1	0/1	0/1: MCI/IMX station number/phone number

**Programming system data local data ASYDL**

System	Index	Bit	Value	Description
	832	b0–7	00–FD	Assign the FPC of the node connected to MC
	833	b0	1	Interface type for MCI: 0/1 = RS-232C interface/LAN interface
		b1	1	0/1: ICS/IMX format

# Configuring the UNIVERGE UM8500 for integration

After ensuring that the messaging system server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedures to confirm that the integration is enabled, to configure the LAN MCI parameters, and to configure the UNIVERGE UM8500 ports.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### Phone settings for integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX 2400 IMS
Switch PBX software version	4203 and later with digital boards and LANMCI
Integration	LANMCI

### Phone settings for integrations with IP Terminal or IP-VPS ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Switch PBX software version	Software Release 16 or later with IP ports
Integration	LANMCI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.



## To configure LAN MCI parameters

- 1 Shut down UNIVERGE UM8500 before setting the following parameters.
- 2 Click **Start > Programs > UNIVERGE UM8500 group > Edit Switch Utility**.
- 3 Ensure the current phone system file is correct and then click **Edit this Switch Configuration**.
- 4 In the Switch Configuration window, click the **Integration** tab.
- 5 In the PBX Connection Settings section, enter the IP address of the phone system that provides UNIVERGE UM8500 server with the integration data.
- 6 Enter the type of parity check used for LANMCI module in phone system, this can be odd or even, in **Parity** field. See the command ASYD, index 34, b1 through b4.
- 7 Enter the ID number of a free LANMCI device in **Device ID** field. NEC UNIVERGE SV8500 offers 2 devices (0 and 1) and UM8500 can connect and receive MCI (Message Center Interface) data from either.
- 8 If the phone system is configured to use office codes for internal extensions, the office code must be entered in the **Ignored Prefixes** and **Ignored VM Prefixes** fields of the **Edit Switch Utility > Integration** tab. To check whether the phone system uses office codes:
  - Use command ASYD, confirm that index 240, bit b4 is set to 0.
  - Write down the office code that the phone system uses for internal calls.
  - Check to see if the phone system is not set to remove the office code from MCI packets, see the ASYD command, index 370, bit b1 is set to 0.
  - Return to **Edit Switch Utility > Integration** tab. Enter the office code recorded above in the **Ignored Prefixes** field and **Ignored VM Prefixes** field. Otherwise, leave the two edit boxes blank (ASYD, index 240, bit b4 is not set to 0 or ASYD, index 370, bit b1 is not set to 0).

### NOTE

An office code is usually introduced to distinguish the extensions of different phone systems that communicate through a CCIS connection. This office code can not be dialed; it appears only in the integration data and on the screen display of the phones for calls over CCIS.

- 9 Leave the other settings at the default values and then click **OK** to save the changes and close Edit Switch utility.

## Configuring UNIVERGE UM8500 ports

Configure the UM8500 voice ports. The procedure used depends on the port type the system is using.

- For IP-VPS or IP Terminal ports, see [“To configure IP-VPS or IP Terminal ports” on page 256](#).
- For digital ports, see [“To configure Digital ports” on page 256](#).

## To configure IP-VPS or IP Terminal ports

- 1 Stop the UNIVERGE UM8500.
- 2 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 3 Enter the PBX IP address.
- 4 Set the general functionality for the ports (VPS or Terminal.)  
If the system has VPS ports, enter the **VPS Number**.
- 5 Under Manage ports, click **Add** to add a new port.  
Enter the **Extension** and **Password** for each port.  
If the system has VPS ports, enter the VPS Channel for each port.
- 6 If the system uses one or more IP PADs, under Manage Gateways, click **Add**.  
Enter the **IP Address** and set the **Has DSP** to 0 for each gateway.
- 7 Click **OK** to save the changes and then close VOIPAdmin.
- 8 Restart UNIVERGE UM8500.

## To configure Digital ports

- 1 Make sure that UNIVERGE UM8500 is running.
- 2 In Internet Explorer, go to the UM8500 Administrator  
`http://<server name>/saweb`
- 3 Go to **System > Ports**. Type the extension of each port. These extensions must be introduced as station numbers, not logical numbers and without the office codes, if they have any. Save the changes.

# ■ NEC UNIVERGE SV8500 with serial MCI

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.
- 2 Program the phone system and extensions.**  
See [“Programming the phone system”](#) on page 260.
- 3 Configure UNIVERGE UM8500 for the integration.**  
See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 264.
- 4 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, [“Testing the extensions”](#) on page 338.
- 5 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, [“Learning phone system tones”](#) on page 340.

## Requirements

The steps to set up the NEC SV8500 with Message Center Interface (MCI) integration with a serial interface require the following:

### Phone system

- A UNIVERGE SV8500 phone systems with MCI:
- One IOC serial port for the MCI data link connected to a serial port, COM1 is the default, on the voice mail server with a PH-68 two-port cable and an RS-232C CA-1 cable.
- One or more of the following station ports set up as voice messaging ports:

Port type	Description
Digital	One digital station port for each voice messaging port.
IP-VPS	One IP-VPS port for each voice messaging port.
IP Terminal	One IP Terminal port for each voice messaging port.

### UNIVERGE UM8500 server

- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sale representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- An available serial port, COM1 is the default.

## Integration description

### How the integration works

The SV8500 serial MCI integration uses a data link, which consists of an RS-232 serial cable connecting the phone system IOC port to the voice mail server. The phone system voice messaging lines connect to the digital voice boards in the voice mail server or using the LAN in case of IP-VPS or IP terminal ports.

The phone system sends the following information through the data link:

- The called party's extension
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)
- The calling party's extension (for internal calls)

UM8500 uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The UNIVERGE SV8500 serial MCI integration with UM8500 provides the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.

**Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

# Programming the phone system

Perform the following procedure to program the phone system for the integration. Using programming options other than those described in the following procedure can affect system performance.

## NOTE

The following procedure is written on the assumption that you will use the SV8500 PCPro software to program the phone system.

## Programming the phone system steps

- 1 Program the voice messaging ports. The procedure used depends on the port type the system is using.**
  - For digital ports, see [“To program the digital ports” on page 260.](#)
  - For IP-VPS ports, see [“To program the IP-VPS ports” on page 260.](#)
  - For IP Terminal ports, see [“To program the IP Terminal ports” on page 261.](#)
- 2 Program the phone system**

Complete programming the phone system. See [“To complete programming the phone system” on page 262.](#)

## To program the digital ports

- 1 Specify a Service Feature Restriction Class (SFC) for all voice messaging ports using the ASFC command.**

The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 2 Assign a value of 26 to the Telephony Equipment Class (TEC) for each voice messaging port using the ASDT command. Use the SFC previously created.**
- 3 Assign all voice messaging ports to a UCD group.**
- 4 Complete programming the phone system. See [“To complete programming the phone system” on page 262.](#)**

## To program the IP-VPS ports

- 1 Make sure that the SV8500 system has enough IP licenses using the DPTR command.**
- 2 Configure the voice messaging ports as IP-VPS extensions using AISTL command, KIND=IP VPS, TEC = 26.**
- 3 Assign the IP-VPS NO. and assign successive IP-VPS channels, starting with IP-VPS CH= 0.**
- 4 Write down the IP-VPS NO. and IP-VPS CH value of the voice messaging ports, so the value is available when the UNIVERGE UM8500 installation wizard asks for it.**

## CAUTION

- All voice messaging ports must have the same value assigned for IP-VPS NO.
- Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.

- 5 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 6 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group using ASHU command.

#### NOTE

If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the ALGSN, ASHUN commands.

#### CAUTION

Do not use a phantom single line extension for the UCD pilot number.

- 7 Complete programming the phone system. See [“To complete programming the phone system” on page 262](#).

## To program the IP Terminal ports

- 1 Make sure that the SV8500 system has enough IP licenses using the DPTR command.
- 2 Configure the voice messaging ports as IP Terminal extensions using the AISTL command, KIND=IP DTERM, TEC = 12.
- 3 Make sure the phone system is using the Protected Login Mode for the voice mail IP ports registration and set the password of each port to be the same with the port extension.
- 4 Specify a Service Feature Restriction Class (SFC) for the voice messaging ports, see the ASFC command. It is recommended that all voice messaging ports be placed in their own SFC. The following Service Feature Indexes (SFIs) are needed in the SFC:

SFI	Service feature
10	Call hold
103	Assignment of no answer timer for blind transfer to station or blind transfer to attendant
104	Blind transfer

- 5 Assign all of the voice messaging ports to a Uniform Call Distribution (UCD) group (see command ASHU).

#### NOTES

- Logical numbers appear only in a NEC Fusion network and are used to uniquely identify all the extensions in the network.
- If the phone system that hosts the voice messaging ports extensions is part of a NEC Fusion network and those ports need to be accessible from the other Fusion nodes, then the UCD must be configured to contain the logical numbers corresponding with the ports extensions, see the commands ALGSN, ASHUN.

**CAUTION**

Do not use a phantom single line extension for the UCD pilot number.

- 6 Complete programming the phone system. See [“To complete programming the phone system” on page 262.](#)

### To complete programming the phone system

- 1 Program each phone to forward calls to the UCD pilot number assigned to the voice messaging system ports, based on the UM8500 call transfer type:

**Release to switch transfer.** Program the phone to forward calls to the UCD pilot number when:

- The extension is busy;
- or,
- The call is not answered.

**Supervised transfer.** Program the phone to forward calls to the UCD pilot number only when the call is not answered. Confirm that call forwarding is disabled when the extension is busy.

- 2 Set up the RS-232 serial data port for AIOC settings as follows:
  - 9600 baud
  - 8 data bits
  - 1 stop bit
  - No parity
- 3 If a remote maintenance modem is used, program the modem line for data line security.
- 4 Use the AUCD command to program the phone system to send UCD call information to MCI. Assign a value of 0 to the **MCI Data Transfer** field for the appropriate tenant and UCD pilot numbers.
- 5 Use the programming system data table to program the ASYD settings. Each bit is part of a hexadecimal number displayed in the ASYD settings. Convert the hexadecimal number to binary to determine the individual settings.
- 6 Use the programming system data local data table to program the ASYDL settings. Each bit is part of a hexadecimal number displayed in the ASYDL settings. Convert the hexadecimal number to binary to determine the individual settings.

#### Programming system data ASYD

System	Index	Bit	Value	Description
1	17	b4	1	Blind transfer to attendant console
	28	b0–4	0	Guard timer not required
		b5	1	MWI controlled by MCI
	29	b1–7	0/1	No/Yes: Assign I/O port for MCI output Port 1 = b1, port 2 = b2, and so on
	34	b1–4	0	Set output to no parity and 1 stop bit
	60	b3	0	UCD queuing required
	63	b0	1	Blind transfer for stations in service
	69	b0	1	No recall, execute call forwarding on no answer
	70	b0	1	Called number display, when forwarding to attendant console
	77	b2	0	MWI refresh required
	78	b0	1	Calling number display enabled
		b1	1	Called station status display enabled



### Programming system data ASYD

System	Index	Bit	Value	Description
	238	b0–7	0	Lamp flash rate
	246	b3	0	MCI expansion set to normal
	400	b2	1	Calling number information sent to MCI
2	6	b0	1	MCI in service when terminating to a UCD group
	7	b1	0	MCI out of service when terminating to attendant console

### Programming system data local data ASYDL

System	Index	Bit	Value	Description
1	641	b1	0/1	0/1: MCI/IMX station number/phone number
	832	b0–7	00–FD	Assign the FPC of the node connected to MC
	833	b0	0	IOC serial interface enabled for MCI
		b1	0	0/1: ICS/IMX format

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the voice mail server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following tables.

### Phone system settings for integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Integration	NEAX2400 IMS
Switch PBX software version	4203 and later with digital boards and MCI
Integration	Serial

### Phone system settings with IP Terminal or IP-VPS ports

Parameter	Required setting
Manufacturer	NEC
Integration	NEAX2400 IMS
Switch PBX software version	Software release 16 or later with IP ports
Integration	Serial

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## Configuring UNIVERGE UM8500 ports

Configure the UM8500 voice ports. The procedure used depends on the port type the system is using.

- For IP-VPS or IP Terminal ports, see [“To configure IP-VPS or IP Terminal ports” on page 264](#).
- For digital ports, see [“To configure Digital ports” on page 265](#).

## To configure IP-VPS or IP Terminal ports

- 1 Stop the UNIVERGE UM8500.
- 2 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 3 Enter the PBX IP address.
- 4 Set the general functionality for the ports (VPS or Terminal.)  
If the system has VPS ports, enter the **VPS Number**.
- 5 Under Manage ports, click **Add** to add a new port.  
Enter the **Extension** and **Password** for each port.  
If the system has VPS ports, enter the VPS Channel for each port.
- 6 If the system uses one or more IP PADs, under Manage Gateways, click **Add**.

Enter the **IP Address** and set the **Has DSP** to 0 for each gateway.

**7** Click **OK** to save the changes and then close VOIPAdmin.

**8** Restart UNIVERGE UM8500.

### **To configure Digital ports**

**1** Make sure that UNIVERGE UM8500 is running.

**2** In Internet Explorer, go to the UM8500 Administrator

`http://<server name>/saweb`

**3** Go to **System > Ports**. Type the extension of each port. These extensions must be introduced as station numbers, not logical numbers and without the office codes, if they have any. Save the changes.



# ■ NEC UNIVERGE SV8500 using OAI

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# Integration overview

UNIVERGE UM8500 uses the Open Application Interface (OAI) to integrate with NEC PBX systems using a TCP/IP link between the UNIVERGE UM8500 server and the PBX. OAI Integration can be used with IP lines and requires that the OAI Integration server is installed.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all phone system and messaging system server requirements have been met. See [“Requirements” on page 268](#).

### 2 Program the phone system and extensions.

See [“Programming the phone system” on page 270](#).

### 3 Configure UNIVERGE UM8500 for the integration.

See [“Configuring UNIVERGE UM8500 for the integration” on page 273](#).

### 4 Install the OAI Integration Server software.

See [“Installing the OAI Integration Server software” on page 274](#).

### 5 Configure the OAI Integration Server.

See [“Configuring the OAI Integration Server” on page 275](#).

### 6 Install and start the OAI service.

See [“Installing and starting the OAI service” on page 278](#).

## Requirements

The steps to set up the UNIVERGE SV8500 using OAI integration require the following:

### Phone System

- A UNIVERGE SV8500 phone system.
- A network connection to the voice mail server.
- One IP-VPS port for each voice messaging port (TEC26) or one digital station port for each voice messaging port.

### UNIVERGE UM8500 server

- A network connection with the phone system. A second network card on the messaging system server to connect directly to the phone system is recommended.
- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

- For the latest information on supported voice boards for UM8500, contact a sales representative.
- No voice boards are required if IP-VPS or IP Terminal ports are used.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- OAI Integration server installed.
- A system key that enables the integration and the appropriate number of voice messaging ports.

# Integration description

The UNIVERGE UM8500 unified messaging solution can use the Open Application Interface (OAI) to integrate with the NEC UNIVERGE SV8500 phone systems. The OAI integration is established over a TCP/IP link between the messaging system and the NEC phone system.

## How the integration works

There are two basic types of OAI integrations:

- **OAI pure integration.** This type of integration uses only the TCP/IP link to connect to the phone system. It has an OAI monitoring slot opened with the phone system and dispatches calls to enabled voice messaging systems. This type of OAI Integration provides the most efficient load balancing capability by dispatching new incoming calls from a monitored number or the voice mail pilot to free voice mail ports.
- **OAI UCD - LAN/Serial MCI integration.** The OAI Integration server uses complementary Message Center Interface (MCI) integration capabilities using either the serial or TCP/IP interface. The complementary MCI integration feature of the OAI Integration server is not a genuine OAI integration. The integration does work in Common Channel Interoffice Signaling (CCIS) networked environments between multiple NEC phone systems when the remote phone systems do not have OAI or their software revision does not feature call-forwarding information in the OAI layer. The MCI link is used as complementary integration support for situations where the OAI layer does not provide full integration, such as in older, legacy phone system environments.

## Integration features

The UNIVERGE SV8500 OAI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.
- **Live Record.** A subscriber can record a phone conversation by pressing the Live Record button on the Dterm phone. The recording can be saved in the subscriber's mailbox for later reference, or forwarded to another subscriber or group of subscribers.

# Programming the phone system

If programming options other than those supplied in the following procedures are used, the integration performance might be affected.

The steps used to program the phone system depends on the phone system being used.

## NOTE

The following procedures are written on the assumption that you will use a SV8500 PCPro software application to program the phone system.

## To set up the UNIVERGE SV8500

- 1 Use the following table to configure the phone system OAI settings for integration:

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYD	1	4	4	1	59	Enable RCS Check from OAI
	1	17	0	1	15	Enable switch while ringing
	1	19	5	1	20	0 = Enable ETF, 1 = Disable ETF
	1	27	4	0	00	0 = Enable MCI, CCIS, ISDN, MW, 1 = Disable MCI, CCIS, ISDN, MW
	1	27	6	0	00	0 = Enable OAI, 1 = Enable OAI
	1	31	2	1	06	CM Page (Name Display)
	1	63	6	1	C1	Enable Call Fwd detail in STS SMFN
	1	63	7	0/1	C1	0 = External OAI, 1 = Internal OAI
	1	79	6	0	00	0 = Enable OAI/ACD services, 1 = Disable OAI/ACD services
	1	80	2	1	04	0 = Clear OAI display, 1 = Leave OAI display
	1	86	6	0	93	0 = English, 1 = Japan
	1	186	0	1	61	Enable CCIS link-reconnect
	1	241	2	1	0E	LP sends SMFNs to IP
	1	241	3	1	0E	Enable detail error codes
	1	299	2	0	00	Must be 0
	1	370	0	1	01	Enable expanded SMFN
	1	439	0	1	01	Enable Call Fwd info over CCIS
	1	449	3	1	08	0 = Hex ANI data for ISDN trunk, 1 = /ASCII data for ISDN trunk
	2	2	5	1	2B	Enable loop release
ASYDL	1	864	0	1	11	Internal IP/ACDP in Service (SVI 1758) 0 = No, 1 = Yes
	1	864	4	1	11	Maximum number of SMFN Output port (SVI 1792) 0 = 2 Ports, 1 = * Ports (normal)
RSVI	SVI 1650			1	1	Call Fwd status for answer SMFN
	SVI 1755			1	1	Call Fwd reason enhancement (over CCIS)
	SVI 1760			1	1	Release SMFN enhancement



- 2 If using an OAI pure integration, use the following table to configure the OAI pilot number. In the example below, extension 299 is the voice mail pilot number:

Command (Description)	Parameter	Value
AMNO (Assignment of Monitored Number)	A/G	A
	TN	1
	MNO	299
	NMI	1
	MFC	0
	UCD	0

- 3 If using the OAI UCD-LAN MCI integration, use the following table to configure Message Center Interface (MCI). If using an OAI pure integration, skip this step. The following commands enable MCI over LAN. The settings made here also need to be enabled in the OAI Server software.

Cmd	Sys	Index	Bit	Value	Sample	Description
ASYDL	1	833	0	1	03	MCI type: 0 = IOC (Input-Output Card) this means no MCI 1 = LAN
	1	833	1	1	03	MCI text format: 0 = ICS 1 = IMX
	1	834	0	1	03	MCI 0 LAN Interface in service: 0 = No 1 = Yes
	1	834	1	1	03	MCI 1 LAN Interface in service: 0 = No 1 = Yes
ASYD	1	246	3	1	08	MCI Expansion: 0 = Normal 1 = Expanded
	1	400	2	1	04	Expanded MCI with ANI Data: 0 = No 1 = Yes

- 4 If using the OAI UCD-LAN/Serial MCI integration, use the following table to set up the UCD hunt group. In the example below, the UCD group is extensions 220-223, with 220 as the pilot.

#### NOTE

Do not adjust UCD hunt group settings if using an OAI pure integration.

Cmd	Tenant	Value	Description
ASHU	1	220	Pilot and Port number
		221	Port number
		222	Port number
		223	Port number

## To set OAI monitored function keys for Live Record

If the Live Record feature will be used in the phone system, verify that the system has the following settings or that the configuration files are updated. The settings presented below are the default settings that the OAI server can use.

### WARNING

If the default settings below are not used, the corresponding settings in the OAI Integration software must be set up accordingly by editing the XML configuration file.

- 1 Type the **AOKC** command in the SV8500 PCPro application. The AOKC (OAI Key Code Data) dialog box appears.
- 2 Assign the OAI key code data:  
  
The OAI key codes 1 through 14 correspond to AKYD key codes FKY 34 through 47 respectively. By default the OAI Integration server uses the TMF codes 192-195 for the Live Record commands Record, Pause/Resume, Re-Record and End, respectively.
  - Set **F-KIND** to 2.
  - Set **C-TONE** to 1.
- 3 Save the AOKC key code information.
- 4 Type the **AKYD** command in the SV8500 PCPro application. The AKYD (Dterm Key Data) dialog box appears.  
  
Assign the function key data for the desired Dterm station:
  - Assign FKY 34 through 47 to any positions of KYN 1 through 16.
  - The OAI key codes for the SV8500 are FKY 34-47 and by default are assigned to the third row from the top of function keys on the Dterm station. This row contains the function keys with ID 9 to 12.
  - Confirm that the my-line is assigned in order to successfully complete the AKYD command.
- 5 Click **SET** or **MODIFY** to save the information, and then **EXIT** to close the SV8500 PCPro application.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UNIVERGE UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone settings for OAI integrations with digital ports

Parameter	Required setting
Manufacturer	NEC
Model	NEAX2400 IMS
Specific version or country	HDS R4 and later digital board with OAI
Integration method	OAI

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

## To update the INI file

- 1 Using Windows Explorer on the UNIVERGE UM8500 server, go to the CommServer\IntLib directory.
- 2 Use a text editor to open the corresponding configuration INI file noted in the previous procedure.
- 3 In the [Configuration] section, modify the NetIP1 value:
  - Replace the NetIPI with the exact IP address that the computer is using to access the same LAN as the phone system.  
Example: NetIP1=172.16.19.191.
  - The NetIP1 = the IP address of the computer where UM8500 is installed; the default value is set to "localhost" but it should be changed because it is possible for the server machine to have more than one network interfaces.
- 4 If using the OAI UCD - LAN MCI integration, under [Configuration], locate UseInternalParser=no. Change this to UseInternalParser=yes.
- 5 Click **File > Save**, and then close the configuration INI file.

# Installing the OAI Integration Server software

Before configuring the OAI integration, the OAI integration software must be installed on the computer where the UNIVERGE UM8500 is installed.

## To install the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 Click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration folder on the disc.
- 4 Click **setup.exe**, then click **Open**.
- 5 In the Run dialog box, click **OK**. The installation wizard begins.
- 6 On the Welcome page, click **Next**.
- 7 On the Customer Information page; if the **User Name** and **Customer Name** fields do not have your information, enter your information into the fields. Select an option indicating whether or not you or anyone else who uses the computer has access to the program. Click **Next**.
- 8 On the Setup Type page, confirm that **Typical** is selected, then click **Next**.
- 9 On the Start Copying Files page, click **Next**.
- 10 When setup is complete, click **Finish**.

A new Program Group, Active Voice, is added to the program list. Two new applications are added to this program group: AvOAIGear and AvOAITray. These applications are used to set up the OAI integration parameters.

## To choose a predefined template for the integration in the OAI Integration Server

- 1 Insert the *Installation* disc into the disc drive.
- 2 From the Windows taskbar, click **Start > Run**.
- 3 Click **Browse**, then in the Browse dialog box, open the Voice Mail\OAIIntegration\OAI Server XML Templates\Single Server folder on the disc. This will show a group of folders that contain predefined sets of XML configuration files meant to help choose the best OAI configuration.

Open the appropriate folder for the integration.

- If using the OAI pure integration, open the **NEC SV7000 - OAI Pure - No CCIS** folder.
- For an OAI UCD - Serial MCI integration, open the **NEC NEAX 2400 - OAI-UCD - MCI Serial** folder.
- If using the OAI UCD - LAN MCI integration, open the **NEC SV7000 - OAI-UCD - MCI LAN** folder.

### NOTE

The files used for the UNIVERGE SV8500 OAI integration are the same as those used for the NEC SV7000 OAI integration.

- 4 From the selected folder, copy and replace the existing AvOAISvr.xml file to the Program Files\Active Voice\OAIIntegration folder on the UNIVERGE UM8500 server.

The Program Files folder is usually found on the partition where the Microsoft Windows was first installed, for example: C:\Program Files\Active Voice\OAIIntegration.

# Configuring the OAI Integration Server

Modify the configuration file to set how calls are handled in the integration.

## To configure the OAI Integration Server

- 1 From the Windows taskbar, click **Start > All Programs > Active Voice > OAI Integration > AVOAI Tray**.

The OAIS icon appears in the notification area, the system tray.

- 2 Right-click the OAIS icon, then click **Advanced**.

The OAIGear page appears.

### WARNING

If an error message appears indicating the service is not installed, close the error dialog box and continue with this procedure. The AV OAI Integration service will automatically install after the procedure is completed.

- 3 On the OAIGear toolbar, click the **Configuration File** icon.

The configuration file for the OAIS parameters appears in an XML editor.

- 4 In the navigation pane of the configuration file, expand CallPilot1 to configure the CallPilot.

In the navigation pane, under the CallPilot object, there are some predefined values for all parameters. Depending on the template chosen, set the following values:

**PBX-IP.** Enter the IP address of the phone system. The default value is only an example.

**PBX-Port.** Enter the OAI monitoring port of the phone system. The default value is 60030 for newer phone systems. Modify the default value only if you know that the phone system is set to a different value.

**Tenant.** PBX Tenant where the OAI pilot or AMNO number is defined physically. If using the OAI-UCD MCI LAN integration, this will be the tenant number where the UCD is configured. This value should match the setting in the phone system configuration. The default value is 1.

**Extension.** If the template that enable an OAI pure integration (NEC SV7000 - OAI Pure - No CCIS) was selected, enter the CallPilot OAI monitored extension or AMNO number. This extension is usually associated with the auto attendant and is a virtual number. In this case, this will be the monitored number that is called to access the voice messaging system. The default value is just an example.

If the template that enables an OAI UCD - MCI LAN integration (NEC SV7000 - OAI-UCD - MCI LAN) was selected, leave this field blank.

Leave all other parameters not listed above at their default values.

- 5 If the system uses Live Record, in the navigation pane of the configuration file, expand the LiveRecord node, and set the following parameters:

### NOTE

Skip this step if the system is not using the Live Record feature.

The OAI Live Record feature allows users to make real-time recordings of their own conversations. The values under this section must be configured to match the phone system settings of the phones used.

**Enabled.** This Enables/Disables the Live Record functionality. The default value is True.

**TMFC-Record.** Enter the Terminal Mode Function Code for the Record command for Live Record. The default value is 192 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-Pause.** Enter the Terminal Mode Function Code for the Pause command for Live Record. The default value is 193 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-ReRecord.** Enter the Terminal Mode Function Code for the ReRecord command for Live Record. The default value is 194 as this is the predefined function in the phone system, but can be changed if needed.

**TMFC-End.** Enter the Terminal Mode Function Code for the End command for Live Record. The default value is 195 as this is the predefined function in the phone system, but can be changed if needed.

**KC-Record.** Enter the OAI Key Code used for the Record command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 1.

**KC-Pause.** Enter the OAI Key Code used for the Pause/Resume command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 2.

**KC-Rerecord.** Enter the OAI Key Code used for the ReRecord command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 3.

**KC-End:.** Enter the OAI Key Code used for the End command on a Dterm function key. To disable monitoring of the key, enter 0 or a negative number. The default value is 4.

**ToggleStartStop.** This feature allows the user to press a single key to start, stop, or restart a Live Record session. To enable the feature, enter True. To disable the feature, enter False. The default value is True.

- 6 If using a template that enables the OAI UCD-MCI serial integration, in the navigation panel of the configuration file, expand the MCI-Serial node.

#### NOTE

Do not complete this step if a template other than the NEC NEAX 2400 - OAI-UCD - MCI Serial template, where the phone system cmd ASYDL Sys 1 Index 833 Bit 0 value is 0, was selected.

The settings must match the settings of the phone system for the MCI Serial connection.

**Format.** Enter the format of the MCI-serial packets expected from the phone system. Enter **I C S** for regular (ICS/IVS) serial packets, or **I M X** for expanded (IMX) packets. The default is ICS.

**COMPort.** Enter the COM number of the serial port. This is the voice server serial port that is connected by the RS-232 cable to the MCI link on the phone system. Accepted values are **COM1** or **COM2**. The default is COM1.

**BaudRate.** Enter the baud rate used by the serial (RS-232/MCI) communication. The value must be identical to the phone system setting. Accepted values are **1200**, **2400**, **4800**, **9600**, or the specially defined phone system setting. The default value is 9600.

**DataBits.** Enter the default phone system data bits. Accepted values are **4**, **5**, **6**, **7**, or **8**. The default value is 8.

**Parity.** Enter the parity used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **N** for NONE, **E** for EVEN, or **O** for ODD. The default value is N.

**StopBits.** Enter the stop bits used by the serial (RS-232/MCI) communication with the phone system. Accepted values are **1**, **1.5**, **2**, or the specially defined phone system setting. The default value is 1.

Leave all other parameters not listed above at their default values.

- 7 If using a template that enables the MCI-LAN integration, in the navigation panel of the configuration file, expand the MCI-LAN node.

#### NOTE

Do not complete this step if a template other than the NEC SV7000 - OAI-UCD-MCI LAN template, where the PBX cmd ASYDL Sys 1 Index 833 Bit 0 value = 1, was selected.

The settings must match the settings for the phone system for the MCI LAN connection.

**LAN-IP.** Enter the IP address of the phone system. This should be the same as the address entered in the CallPilot1 section under the PBX-IP. The default value is just an example and must be changed to match the phone system setting.

**Format.** Enter the format of the MCI-LAN packets expected from the phone system. Enter **ICS** for regular (ICS/IVS) packets, or **IMX** for expanded (IMX) packets. The default is IMX.

**Parity.** Enter the parity or checksum used by the phone system to process the MCI-LAN packets. Accepted values are **None**, **Even**, or **Odd**. The default is Odd.

**LocalPort.** Enter the local port used by the MCI-LAN integration module for a TCP/IP connection to the phone system. Accepted values are any valid TCP/IP port. The default is 60120. Do not change this value unless you know that this port is already taken by other applications on the UNIVERGE UM8500 server.

**DeviceID.** Enter the device ID used by the MCI-LAN integration module to identify itself to the MCI interface on the phone system. Accepted values are 0 and 1. The default is 1.

Leave all other parameters not listed above at their default values.

- 8 In the navigation pane of the configuration file, expand VMSystem1 node.

Set the following parameters to configure the VMSystem1 node:

**Host.** Enter the IP address of the monitored UNIVERGE UM8500 server. This will be the same IP address entered previously in the configuration ini file. The default value is just an example.

**PortRange.** Enter the port or range of ports for the PBX tenant hosting the voice mail ports. Ports can be set by entering a single port number, for example `x x x x`; a range of numbers, for example `x x x x - x x x x`; or a combination or both, for example `x x x x - x x x x , x`. The default ports are just an example.

**Tenant.** Enter the PBX tenant number where the voice mail ports are set. The default value is 1.

Leave all other parameters not listed above at their default values.

- 9 Click **File > Save** to save the XML configuration file.

- 10 Install the OAI service and test the integration.

See [“Installing and starting the OAI service” on page 278](#).

# Installing and starting the OAI service

After saving the configuration file, install the OAI service then test the service to ensure a successful integration.

## To install the OAI Service

- 1 On the OAI Gear page, click the **Install Service** icon, or from the Service menu, click **Install Service**.
- 2 On the AV OAI Voice Mail Integration Server - Install Service dialog box, select the **This account** option.
- 3 Enter the domain Administrator name, type and confirm the domain Administrator password for the domain, then click **OK**.

### NOTE

It is recommended that the same domain administrator account that was used to install the UNIVERGE UM8500 software is entered. The Administrator name might need to be prefaced with the domain. For example, *<domain name>\Administrator*.

You can also choose to install the OAI Service under a Local System account, or even a different domain account, but this can cause difficulties when troubleshooting any subsequent integration problems.

- 4 Click **Start > All Programs > Administrative Tools > Services**.  
The Services MMC snap-in appears.
- 5 In the details pane, confirm that the AV OAI Integration Server service is listed.
- 6 Right-click **AV OAI Integration Server**, then click **Properties**.
- 7 On the General tab, ensure that the Startup type is **Automatic**.
- 8 Click the Recovery tab, then do the following:
  - Confirm that **Restart the Service** is selected for each failure attempt.
  - Enter 1 in the **Restart service after** field.
- 9 Click **OK** to exit the AV OAI Voice Mail Integration Server Properties dialog box.
- 10 Start the OAI Integration server using either of the following methods:
  - In the **Services MMC snap-in**, right-click **AV OAI Integration Server**, then click **Start**, or
  - Right-click **AV OAI Server** in the notification area, and then click **Start service**.

The icon changes from stop to start.

## Testing the OAI integration

After installing the service and setting up the parameters, test the integration to ensure that it works correctly.

## To test the OAI Integration Server

- 1 Place a direct call to the voice mail pilot number and confirm that is answering. Use a voice mail subscriber extension with a valid phone extension to place a call to the voice mail pilot number. You should hear: "Please Enter Your Password."
- 2 Leave a voice message for a test user that has an actual phone extension.
  - Confirm that the message indicator for the extension is on. This verifies that the MWI section of the configuration file was set properly.



- If the Message Count field in the MWI-OAI node of the configuration file was set to True, confirm that the message count is listed.
- 3 Retrieve the voice message and confirm that the message waiting indicator turns off and the phone display clears.



# ■ Nortel Meridian-1 with D82

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.

### 2 Set up UNIVERGE UM8500 for the integration.

See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 284.

### 3 Connect the systems.

See “[Connecting the systems](#)” on page 285.

### 4 Set up the phone system for the integration.

See “[Programming the phone system](#)” on page 286.

### 5 Test the phone extensions.

Test the phone extensions that are set up for the integration. See Appendix B, “[Testing the extensions](#)” on page 338.

### 6 Run the Learn Tones utility.

Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, “[Learning phone system tones](#)” on page 340.

## Requirements

The steps to set up the Nortel Meridian-1 with D82 integration require the following:

### Phone system

- A Nortel Meridian-1, generic release 15 or later phone system.
- The following phone system packages:
  - Package 19, Digit Display software (DDSP)
  - Package 46, Message Waiting Center (MWC)
- For each voice messaging port, one Digital Network Interface Circuit (DNIC) port, which emulates a digital phone, installed and set up as a voice messaging port.
- The phone system ready for the integration as described in the phone system manufacturer’s documentation.
- A digital connection cable for each voice board.
- A type 66 interconnect block for each 25-pair PBX station interface cable.

### UNIVERGE UM8500 server

- The Dialogic D82 voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sale representative.

- A PBX station interface cable for each voice board.
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.

## Integration description

The Nortel Meridian-1 with D82 integration uses digital lines to connect the phone system and the UNIVERGE UM8500 server. Each D82 voice board in UM8500 connects to the phone system through a PBX station interface cable. A D82 voice board emulates up to eight digital phones.

### Integration features

The Nortel Meridian-1 with D82 integration with UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UNIVERGE UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	NORTEL
Model	MERIDIAN 1
Switch software version	M2616 phone emulation
Integration	Direct Digital

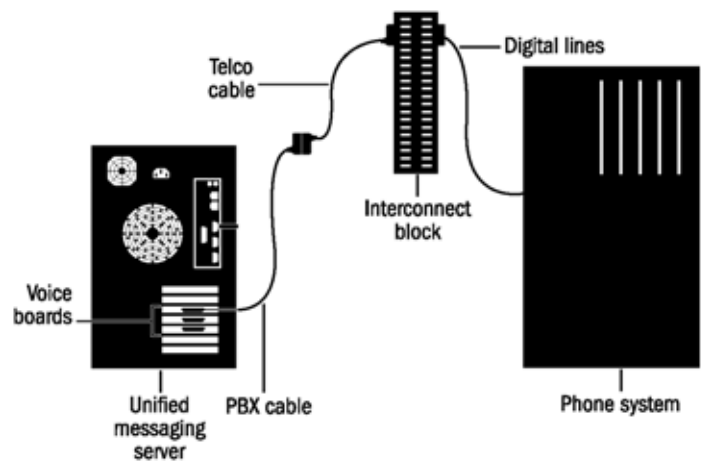
- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Connecting the systems

After installing all of the required hardware on the voice messaging system, perform the following procedure to connect the phone system to the messaging system.

To install required voice messaging system hardware, such as D/82 boards, see the *Installation Guide*.

## System connections



### To connect the phone system and

- 1 Connect the phone system digital lines 1-8 (or 1-4 on a 4-port system) to a type 66 interconnect block. See the “D82 two-wire pinouts” table below for cabling requirements.
- 2 Connect an 25-pair PBX station interface cable to an amphenol connection on the type 66 interconnect block.
- 3 Connect the other end of the PBX station interface cable to a digital cable.
- 4 Connect the other end of the digital cable to a D82 board installed in the UM8500 server.
- 5 Repeat steps 1 through 4 for each additional D82 board installed.

#### D82 Two-wire pinouts

Phone line number	Type 66 Block pair	Pin number	Pair color	Lead designation
1	2	27 2	white-orange orange-white	T1 R1
2	4	29 4	white-brown brown-white	T2 R2
3	6	31 6	red-blue blue-red	T3 R3
4	8	33 8	red-green green-red	T4 R4
5	10	35 10	red-slate slate-red	T5 R5
6	12	37 12	black-orange orange-black	T6 R6
7	14	39 14	black-brown brown-black	T7 R7
8	16	41 16	yellow-blue blue-yellow	T8 R8

# Programming the phone system

After connecting the systems, perform the following procedures to set up the phone system for the integration. Refer to the phone system documentation for details.

- On the LD16 screen for each extension, confirm that the CPDC prompt is set to No, which is the default setting. Otherwise, the dialing ports might be disabled.
- Programming other phone system or extension options might create a conflict with voice messaging functions.

## To decide on an extension numbering plan

- Before setting up the voice messaging extensions, decide on an extension numbering plan in accordance with the organization's requirements.

### NOTE

The phone system does not recognize extension numbers that begin with zero.

## To confirm that the DDSP and MWC packages are installed

- 1 On the phone system, go to the LD22 screen.
- 2 Set the REQ prompt to PRT.
- 3 Set the TYPE prompt to PKG.
- 4 Confirm that both of the following are displayed:
  - DDSP (for Package 19, Digit Display Software)
  - MWC (for Package 46, Message Waiting Center)

## To set up the voice messaging extensions to use a hunt group

- 1 On the phone system, find the extensions assigned to the voice messaging system (circuit board types QPC578 or NT8D02).
- 2 On the phone system, go to an LD11 screen.
- 3 Set up a terminal number, the TN prompt, for the first voice messaging extension. The screen sample on the next page uses TN 0 0 6 2 as an example.
- 4 Set Key 00 to SCR (ring call appearance key). The screen sample on the next page uses extension 500 as an example.
- 5 Set Keys 3 through 5 as shown on the next page.
- 6 Set the HUNT prompt to the next extension that the phone system will hunt to when this voice messaging extension is busy. The screen sample uses extension 501. Set the last port to hunt back to the first extension in the group.

### NOTE

When the hunt group is set up as described, all of the subscriber extensions are forwarded to the first voice messaging extension. If the first extension is busy, the system hunts for the next available extension. The system hunts in sequence up to the last extension, then starts over until a voice messaging extension becomes available.



7 Repeat steps 2 through 5 for each voice messaging extension.

#### NOTES

- Some releases of the Meridian-1 phone system require setting the CLS prompt to DDS instead of ADD.
- Only the prompts needed for this integration appear on this screen. For details on other prompt settings, refer to the phone system documentation.

### LD11 screen sample

REQ	NEW
TYPE	2616
TN	0 0 6 2

CUST	0
------	---

CLS	CTD	FBD	WTA	MTD	FNA
HUNT	HTA	ADD	HFD	MWA	CNDA
	501				

KEY	00	SCR	500
KEY	03	TRN	
KEY	04	MCK	
KEY	05	MIK	

### To set the call party name display

- 1 On the phone system, go to the LD95 screen.
- 2 Accept the default settings, except for the HUNT prompt, which should be changed to CFNA. Also, verify that the CFNA prompt is set to CFNA. The settings should be as follows:

Prompt	Setting
REQ	PRT
TYPE	CPND
CUST	0
TYPE	CPND
CUST	0
CNFG	ALON
MXLN	27
STAL	YES
DFLN	27
DES	NO
RESN	YES
CFWD	FWD
<b>CFNA</b>	<b>CFNA</b>
<b>HUNT</b>	<b>CFNA</b>
PKUP	PICK
XFER	T
AAA	A
NITC	NI

## To program a 2008 phone

- 1 On the phone system, go to the LD11 screen to set up the digital 2008 phone.

### NOTE

If the system is equipped with audible message waiting (AMW), set the CLS prompt to LPD to enable a stutter dial tone. If the phones have LEDs or neon lamps, set the CLS prompt to LPA to allow the activation of visual message waiting indicators.

- 2 Set the REQ, TYPE and CLS prompts as shown in the screen sample.
- 3 Set the other prompts as applicable.

## LD11 settings for digital 2008 phones

REQ	CHG
TYPE	2008
TN	0 1 8 3
-----	
FDN	500
-----	
CLS	HTA FNA MWA CFTA SFA
EFD	500
HUNT	500
EHT	500

### NOTE

Only the prompts needed for this integration appear in this screen. For details on other prompt settings, refer to the phone system documentation.

## To program SL-1 phones

- 1 On the phone system, go to the LD11 screen to set up the SL-1 phones.

### NOTE

If the system is equipped with audible message waiting (AMW), set the CLS prompt to LPD to enable a stutter dial tone. If the phones have LEDs or neon lamps, set the CLS prompt to LPA to allow the activation of visual message waiting indicators.

- 2 Set the REQ, Type, CLS, and KEY prompts as shown in the following screen.
- 3 Set the other prompts as applicable.

## LD11 settings for SL-1 phones

REQ	CHG
TYPE	SL1
TN	008 3
FDN	
500	
CLS	HTA FNA MWA CFTA
	CNID
EFD	500
HUNT	500
EHT	500
KEY	
04 MWK 500	

### NOTE

Only the prompts needed for this integration appear in this screen. For details on other prompt settings, refer to the phone system documentation.

## To program analog 2500 type phones

- 1 On the phone system, go to the LD10 screen to set up the analog 2500 type phone.

### NOTE

Analog phones require special interface boards for QPC789 and NT8D09AB neon lamps. Without these boards, the neon lamp is disabled.

- 2 Set the REQ, Type, CLS, and FTR prompts as shown in the sample screen.
- 3 Set the other prompts as applicable. The other prompts shown in the screen sample are examples. Different settings might be required, depending on the site. For details on the other prompt settings, refer to the phone system documentation.

## LD10 settings for analog 2500 phones

REQ	CHG
TYPE	500
TN	0 0 7 1
-----	
HUNT	500
-----	
CLS	HTA FNA MWA LPA
	CFTA SFA
FTR	FDN 500
	EFD 500
	EHT 500

### NOTES

- The CLS prompt setting for call forwarding (FNA) can be different depending on the transfer type selected for individual subscriber extensions.
- Only the prompts needed for this integration appear in this screen. For details on other prompt settings, refer to the phone system documentation.

# Troubleshooting

If one of these problems is encountered, try the corrective actions listed for the problem. If these actions do not correct the problem, or if the problem is not described here, contact Technical Support.

Problems	Corrective actions
<p>Calls to the messaging system do not connect.</p> <p>Calls to the voice messaging system connect, but no prompts play.</p> <p>Callers entering an extension are always answered with the opening greeting instead of the personal greeting.</p> <p>Calls are not integrating with the phone system.</p> <p>Easy message access is not functioning: subscribers access their voice mailboxes and hear the opening greeting instead of personal options.</p> <p>Calls are forwarded to the opening greeting instead of a subscriber's mailbox.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• Confirm that expansion boards are firmly seated in the computer expansion slots, and that each board is properly configured.</li> <li>• See the <i>Installation Guide</i> to check the voice board settings.</li> <li>• Confirm that the PBX station interface cables between the systems are connected and functioning correctly. Try testing each cable or replacing each with a different cable.</li> <li>• Confirm that the correct phone system model is set up on the voice messaging system. On the UM8500 Administrator, go to <b>Switch&gt; Switch Information</b> and check that the correct phone system manufacturer and model type are displayed.</li> </ul>
<p>Callers are asked to hold or complain that they are on hold for too long when calling an extension that is using "Do not disturb" mode.</p>	<p>Typically this happens because the voice messaging system is set up to use the await-answer transfer type and call holding for that extension. Call holding must be turned off when using the "Do not disturb" mode on the phone.</p>
<p>The phone system cabinet that contains the voice messaging station cards sporadically resets itself.</p>	<p>The phone system might be overloaded due to an increase in polling traffic between the D82 boards and the system. Spread out the load by distributing the voice messaging extensions among multiple station cards on the phone system. For example, distribute three or fewer voice messaging extensions per station card.</p>
<p>Subscriber's phones are not forwarding calls on ring-no-answer or on busy.</p>	<p>Confirm that the subscriber's phone is set up on the phone system to forward calls to the voice messaging hunt group pilot number on ring-no-answer and on busy.</p>
<p>Subscriber message waiting indication fails.</p> <p>Message waiting indicators are not activated after messages are left.</p> <p>Message waiting indicators are not turned off after messages are retrieved.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• On the UM8500 Administrator, on the Ports page verify that at least one of the voice messaging ports is set for MWI dialout.</li> <li>• On the UM8500 Administrator, confirm that MWI is enabled for the subscriber.</li> </ul>
<p>Await-answer calls release before the personal greeting is played.</p>	<p>See <a href="#">"Learning phone system tones" on page 340</a>.</p>





# Siemens 9751 CBX with D42 or D82

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

### 1 Review the system and equipment requirements

Verify that all phone system and messaging system server requirements have been met. See [“Requirements,”](#) below.

### 2 Set up UNIVERGE UM8500 for the integration.

See [“Configuring UNIVERGE UM8500 for the integration”](#) on page 296.

### 3 Connect the systems.

See [“Connecting the systems”](#) on page 297.

### 4 Set up the phone system for the integration.

See [“Programming the phone system”](#) on page 298.

### 5 Test the phone extensions.

Test the phone extensions that are set up for the integration. See Appendix B, [“Testing the extensions”](#) on page 338.

### 6 Run the Learn Tones utility.

Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, [“Learning phone system tones”](#) on page 340.

## Requirements

Before setting up the Siemens 9751 CBX with D42 or D82 integration, confirm that the site meets the following requirements and that all of the necessary components are available:

### Phone system

- Siemens 9751 CBX phone system, version 9005.6.84.
- The phone system ready for the integration as described in the phone system manufacturer's documentation.
- A type 66 interconnect block for each PBX station interface cable.

### UNIVERGE UM8500 server

- The Dialogic D42 or D82 voice boards installed as described in the *Installation Guide*.
- A PBX station interface cable for each voice board
- UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports



## Integration description

The Siemens 9751 CBX with D42 or D82 integration uses digital lines to connect the phone system and the UNIVERGE UM8500 server. A D42 voice board emulates up to four digital phones. A D82 voice board emulates up to eight digital phones.

### Integration features

The Siemens 9751 CBX with D42 or D82 integration provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UNIVERGE UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

### Phone system settings

Parameter	Required setting
Manufacturer	Siemens Rolm
Model	CBX 9000
Switch PBX software version	Rolm 9751, Rolmphone 400 emulation
Integration	Direct Digital

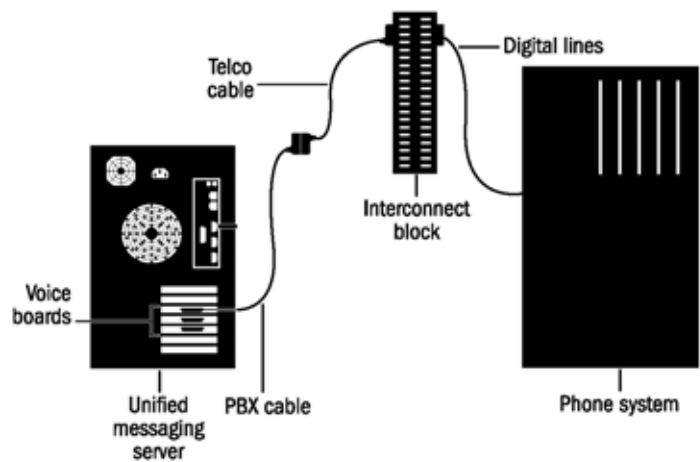
- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Connecting the systems

After installing all of the required hardware on the voice messaging system, perform the following procedure to connect the phone system to the UM8500 system.

To install required voice messaging system hardware, see the *Installation Guide*.

## System connections



## To connect the phone system

- 1 Connect the phone system digital lines 1-8 (or 1-4 on a 4-port system) to a type 66 interconnect block. See the table on the next page for cabling requirements.
- 2 Connect a telco cable to an amphenol connection on the type 66 interconnect block.
- 3 Connect the other end of the telco cable to a PBX station interface cable.
- 4 Connect the other end of the PBX cable to a voice board installed in the UM8500 server.
- 5 Repeat steps 1 through 4 for each additional voice board installed.

### D82 Two-wire pinouts

Phone line number	Type 66 Block pair	Pin number	Pair color	Lead designation
1	2	27	white-orange	T1
		2	orange-white	R1
2	4	29	white-brown	T2
		4	brown-white	R2
3	6	31	red-blue	T3
		6	blue-red	R3
4	8	33	red-green	T4
		8	green-red	R4
5	10	35	red-slate	T5
		10	slate-red	R5
6	12	37	black-orange	T6
		12	orange-black	R6
7	14	39	black-brown	T7
		14	brown-black	R7
8	16	41	yellow-blue	T8
		16	blue-yellow	R8

# Programming the phone system

After connecting the system, perform the following steps to set up the Siemens 9751 CBX phone system for the integration. Refer to the phone system documentation for details.

## 1 Program the ROLMphone 400 digital station sets.

Create a feature button table and extensions, and assign line appearances to feature buttons. See [“Programming ROLMphone 400 digital station sets” on page 298](#).

## 2 Program the hunt group.

Set up a hunt group to include all of the voice mail ports. See [“To set up the hunt group” on page 299](#).

## 3 Program subscriber stations.

Set subscriber stations to call forward to the hunt group. See [“To program subscriber stations” on page 300](#).

## Programming ROLMphone 400 digital station sets

Each extension on the Siemens 9751 CBX is assigned a class of service (COS) which determines features available to that extension. The default COS, 00, might not have the necessary features for the voice mail ports or the ROLMphone 400 extensions. This section describes how to enable or disable features within a COS.

### To set the class of service

- Assign COS 15 settings to meet ROLMphone 400 digital station set requirements. Refer to the following table for the required setting for each feature.

Feature	Setting
APV (always in privacy)	Yes
NFL (no flash allowed)	No
NOH (no howler)	Yes
DND (do not disturb)	No

For example, if the NOH (no howler) feature is disabled, to enable it, at the command prompt type `MODIFY COS_FEAT NOH` then press **ENTER**.

### To program the ROLMphone 400 digital stations

- Before setting up the ROLMphone 400 feature button table, locate an available ROLMphone Interface channel in the Siemens 9751 CBX. An RPI channel is the basic digital port used by ROLMphone digital sets.

After locating an available channel, change its configuration to indicate ROLMphone 400s will be attached. We recommend sequentially numbering these extensions. These extensions will be placed in a hunt group later.

- Create an unused feature button table. For example, at the command prompt, type `CRE BUTTON 400 9` then press **ENTER**.

In the example, 400 indicates the phone type and 9 indicates the feature button table number. The system displays the current key assignments.

Program the buttons on the phone according to the feature settings listed in the following table.

Button on phone	Feature setting
10	HOLD
30	CNCT (Connect)
37	MWCTR (Message waiting center)
38	XFER (Transfer)

Verify that at least one line appearance key is programmed (for example, Line 1).

These are the minimum programming requirements for the integration.

- Before continuing, verify that any changes made to the feature button table are correct. For example, at the command prompt, type `LI BUTTON 400 9` then press **ENTER**. Refer to the screen example below.

COMMAND: CRE BUTTON 400 9											
PHONE TYPE			TABLE #								
-----			-----								
400			9								
BTN	FEAT	IDX	BTN	FEAT	IDX	BTN	FEAT	IDX	BTN	FEAT	IDX
-----			-----			-----			-----		
1			11			16			21		31
2			12			17			22		32
3			13			18			23		33
4			14			19			24		34
5			15			20			25		35
6									26		
7									27		
8									28		36
9	LINE 1								29		37
10	HOLD								30	CNCT	38
											XFER

- Create one extension number to be used as the ringing line appearance for each voice mail port.

For example, to use extension 501, at the command prompt, enter `CRE EXTEN 501` then press **ENTER**.

Repeat this command for each extension used for a voice mail port.

- Assign the feature button table to the port address number (PAD #), then verify that message waiting indication is turned off.

For example, at the command prompt, type `CRE RP 010402` then press **ENTER**. In this example, the selected RPI channel is 010402, where 01 indicates the phone system number, 04 is the slot in the phone system, and 02 is the number of the voice mail port.

Verify that message waiting indication is turned off for the voice mail port. Message waiting indication cannot be used on a voice mail port.

Before continuing, verify the ROLMphone 400 programming. For example, at the command prompt, type `LI RP 010402` then press **ENTER**.

Repeat this step for each voice mail port.

## To set up the hunt group

The integration uses only one hunt group. The pilot number for this group is the published voice mail number for all direct and forwarded calls. Choose a number that is easy to remember, for example, 500 rather than 527.

Programming a name for the voice port hunt group increases the amount of information sent between the Siemens 9751 CBX and the voice mail system during each call, thereby slowing the overall process. It is strongly recommended that a name not be programmed for the voice port hunt group.

- Place the extensions from all the ROLMphone 400 digital station sets in a hunt group using extension 500 as the pilot number. For example, at the command prompt, type `HD_GROUP 500` then press **ENTER**.
- Verify that the hunt group is correct. For example, at the command prompt, type `LI HD_GROUP 500` then press **ENTER**.

## To program subscriber stations

The remaining Siemens 9751 CBX programming involves individual subscriber extensions. By forwarding a subscriber to the integration pilot number, integrated call answering is provided.

Some phone system software versions allow two forwarding paths. Program call forwarding for internal, external, busy, and ring-no-answer conditions to suit subscriber needs.

Generally, subscribers with ROLMphone 400 digital station sets have a message waiting button defined on their phone. If not, the phone system administrator can add this feature. If the pilot number of the integration hunt group is assigned to the message waiting button, messages are retrieved by pressing the button whenever the light is flashing.

- 1 Enable forward-on-busy, forward on ring-no-answer, and forward on do-not-disturb as desired for each subscriber. For example, for a subscriber assigned to extension 201, at the command prompt, type `MOD EXTEN 201` then press **ENTER**.
- 2 Before continuing, verify that the forwarding path is assigned correctly. For example, at the command prompt, type `LI EXTEN 201` then press **ENTER**.

# Troubleshooting

If one of these problems is encountered, try the corrective actions listed for the problem. If these actions do not correct the problem, or if the problem is not described here, contact Technical Support.

Problems	Corrective actions
<p>Calls to the voice messaging system do not connect.</p> <p>Calls to the voice messaging system connect, but no prompts play.</p> <p>Callers entering an extension are always answered with the opening greeting instead of the personal greeting.</p> <p>Calls are not integrating with the phone system.</p> <p>Easy message access is not functioning: subscribers access their voice mailboxes and hear the opening greeting instead of personal options.</p> <p>Calls are forwarded to the opening greeting instead of a subscriber's mailbox.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• Confirm that expansion boards are firmly seated in the computer expansion slots and that each board is properly configured.</li> <li>• See the <i>Installation Guide</i> to check the voice board settings.</li> <li>• Confirm that the PBX station interface cables between the systems are connected and functioning correctly. Try testing each cable or replacing each with a different cable.</li> <li>• Confirm that the correct phone system model is set up on the voice messaging system. On the UM8500 Administrator, go to <b>Switch</b> &gt; <b>Switch</b> Information and check that the correct phone system manufacturer and model type are displayed.</li> </ul>
<p>Callers are asked to hold or complain that they are on hold for too long when calling an extension that is using "Do not disturb" mode.</p>	<p>Typically this happens because the voice messaging system is set up to use the await-answer transfer type and call holding for that extension. Call holding must be turned off when using the "Do not disturb" mode on the phone.</p>
<p>The phone system cabinet that contains the voice messaging station cards sporadically resets itself.</p>	<p>The phone system might be overloaded due to an increase in polling traffic between the D82 boards and the system. Spread out the load by distributing the voice messaging extensions among multiple station cards on the phone system. For example, distribute three or fewer voice messaging extensions per station card.</p>
<p>Subscriber's phones are not forwarding calls on ring-no-answer or on busy.</p>	<p>Confirm that the subscriber's phone is set up on the phone system to forward calls to the voice messaging hunt group pilot number on ring-no-answer and on busy.</p>
<p>Subscriber message waiting indication fails.</p> <p>Message waiting indicators are not activated after messages are left.</p> <p>Message waiting indicators are not turned off after messages are retrieved.</p>	<p>Perform the following for the problems listed:</p> <ul style="list-style-type: none"> <li>• On the UM8500 Administrator, on the Ports page verify that at least one of the voice messaging ports is set for MWI dialout.</li> <li>• On the UM8500 Administrator, confirm that MWI is enabled for the subscriber.</li> </ul>
<p>Await-answer calls release before the personal greeting is played.</p>	<p>See <a href="#">"Learning phone system tones" on page 340</a>.</p>





# ■ Sphere System

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide* to set up the messaging system for use with a Sphere system.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
See [“Requirements” on page 304](#).
- 2 Set up the Sphere system.**  
See [“Setting up the Sphere system” on page 307](#).
- 3 Configure the Standard SIP integration on the UNIVERGE UM8500 server.**  
See [“Configuring UNIVERGE UM8500 for integration” on page 313](#).

## Requirements

Before setting up the Sphere integration, confirm that the following requirements are met and that all the necessary components are available:

### Phone system

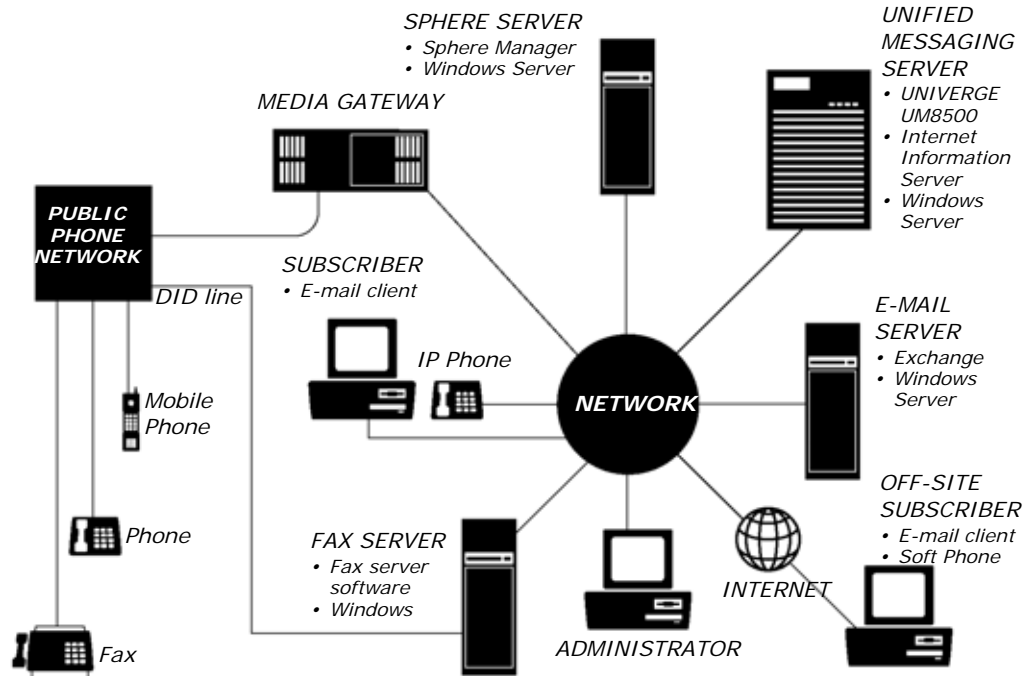
- A media gateway compatible with the Sphere system is needed if UM8500 users use the fax feature.
- Sphere system software version 6.1 or later.
- Licenses for all phone lines, IP phones, and other compliant devices or software that is be connected to the network, as well as one license for each port.
- IP phones.
- A LAN connection at each location where an IP phone will be connected to the network.

### UNIVERGE UM8500 server

- UNIVERGE UM8500 installed and ready for integration as described in the *Installation Guide*.
- A system key with the integration type set to SIP Standard with the Feature Sphere enabled and with the appropriate number of voice messaging ports enabled.

# Integration description

The following illustration shows a full-featured UNIVERGE UM8500 installation integrating with the Sphere system network.



## How the integration works

NEC Sphere integration uses a network connection to connect the messaging system server with the phone system. Voice messaging ports emulate standard IP trunk connections. The communication between the parties is facilitated by a series of Voice over IP (VOIP) protocols, such as SIP, RTP, and RTCP, used for call signaling and voice streaming.

## Integration features

The Sphere system integration offers the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's messaging system. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** The messaging system receives caller ID information from the Sphere system, if available. This information is displayed in the message subject line in Microsoft Outlook® or other desktop messaging applications.

**Easy message access.** A subscriber can retrieve messages without entering an ID. The messaging system identifies a subscriber based on the extension from which the call originated. A password might be required.

**Identified subscriber messaging.** The messaging system automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, the messaging system notifies the phone system to activate the message waiting indicator on the subscriber's extension.

**Notification to phone and pager devices.** When a subscriber has phone or pager notification devices enabled, the messaging system calls the device to deliver the voicemail, fax, or e-mail notification. When the call is received

the subscriber is required to enter an ID and password to authenticate the subscriber.

**Greetings and voice names recording over the phone.** When using the UM8500 Administrator or UM8500 Assistant to change greetings or recorded names, the messaging system calls the phone specified in the settings section of the Media Master Control to play or record the selected file.

**Playing voicemail messages over the phone when using the Outlook VMO client.** When using ViewMail® for Microsoft Outlook (VMO) to record or play voicemail messages, if the multimedia device is set to a phone, the messaging system calls the phone to facilitate subscriber interaction with the messaging system for creating and listening to voicemail messages.

**TDM fax integration simultaneously with the Sphere SIP integration.** The voicemail system supports native fax integration, using Dialogic fax boards, at the same time as the Sphere SIP integration.

**CallerID based callback.** The messaging system allows the subscriber to call back the originator of a message when the caller ID information is present. The messaging system executes a release transfer to the recorded Caller ID.

# Setting up the Sphere system

Follow the procedures in this section to set up the Sphere System to work with UM8500.

## NOTE

Verify that the User Agent Generic-SIP-Trunk, your Voice Mail SIP user agent, appears in the SIP tab in the Spherical System Properties. If it is missing, add the user agent and restart the UM8500 system in order to be recognized by the Sphere system.

## To configure the Sphere system and add voicemail ports.

## NOTE

The Sphere System Installation discs are not shipped with UM8500. If you do not have the installation discs, contact the NEC reseller. Follow NEC Sphere procedures for initial installation and configuration of the Sphere system.

### 1 Open the Spherical Administrator:

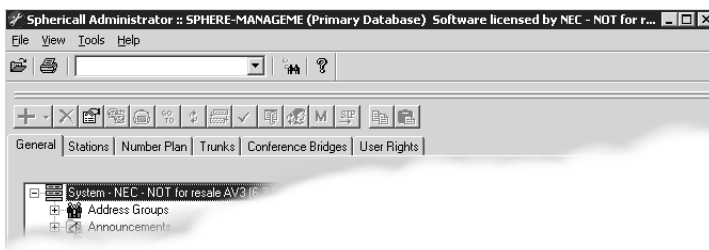
- Click **Start > All Programs > Spherical > Administrator**.

or

- Double-click the **Spherical Administrator** icon on the desktop.

### 2 Click the **General** tab.

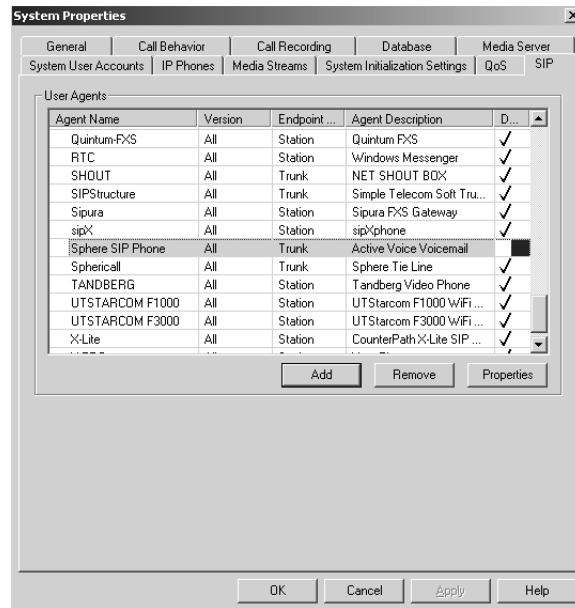
### 3 Double click **System - NEC - NOT for resale** to open the System Properties window.



The System Properties window appears

### 4 On the System Properties window, click the **SIP** tab.

5 Scroll down to the **Sphere SIP Phone** entry.



If **Sphere SIP Phone** is not listed:

- Click **Add** and to add a new blank entry.
- Type the following:

**System Properties**

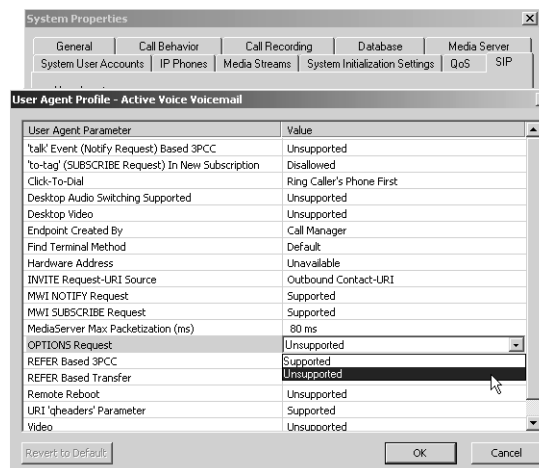
Field name	Type or Select
Agent Name	Sphere SIP Phone
Version	All
Endpoint	Trunk
Agent Description	ActiveVoice Voicemail

If **Sphere SIP Phone** entry is listed, skip this step.

6 Double-click the **Default** column entry.

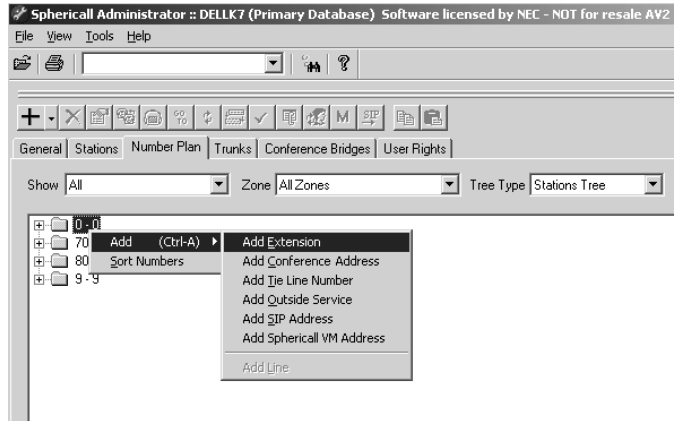
The User Agent Profile-Active Voice Voicemail window appears.

7 Select **Unsupported** from the **Value** list.



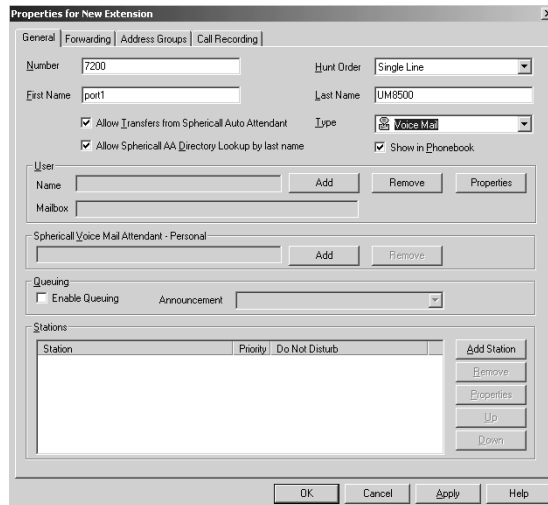
8 Click **OK**.

- 9 On the Spherical Administrator, click the **Number Plan** tab. Add all voicemail extensions as follows:
  - a For each extension, right-click a **Number Plan**, select **Add**, then select **Add Extensions**.



The Properties for New Extension window appears.

- b On the Properties for New Extension window:



- ◆ Type the extension number in the **Number** field.
- ◆ Select the **Round Robin Group** from the **Hunt Order** list.
- ◆ Type the port number in the **First Name** field.
- ◆ Type **UM8500** in the **Last Name** field.
- ◆ Select the **Allow Transfers from Spherical Auto Attendant** check box.
- ◆ Select the **Allow Spherical AA Directory Lookup by last name** check box.
- ◆ Select **Voice Mail** in the **Type** list.
- ◆ Do not select the **Enable Queuing** check box.

- 10 Use the VoipAdmin Tool to configure the messaging system.

See “[Configuring UNIVERGE UM8500 for integration](#)” on page 313.

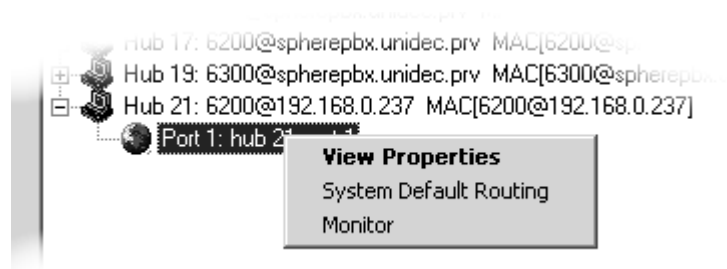
Start the messaging system. Sphere creates a SIP trunk, but you cannot use the extensions at this time.

- 11 On the Spherical Administrator you should see the messaging system listed on the **Trunks** tab.

Press **F5** to refresh the data displayed in the Trunks tab.

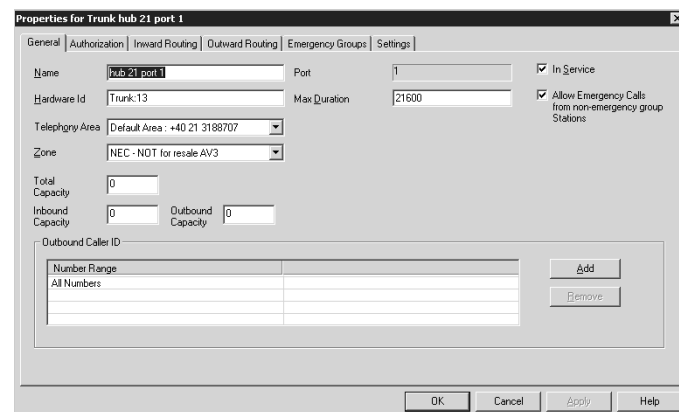
- 12 Click **+** to expand the messaging system hub entry.

- 13 Right-click **Port 1** and select **View Properties**.



The Properties window port appears.

- 14 Click the **General** tab.



Depending on your licenses, type the appropriate values in the **Total Capacity**, **Inbound Capacity**, and **Outbound Capacity** fields.

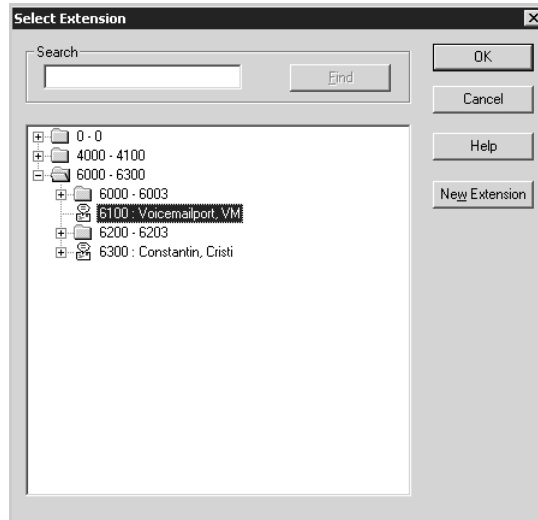
If you do not know these values, type an **Inbound** and **Outbound** value that is equal or greater than the total number of ports that you are using on the messaging system.

In the **Total Capacity** field, type the sum of the **Inbound** and **Outbound** values. For example, you have 12 licensed voicemail ports. Type at least 12 in both **Inbound** and **Outbound** fields, in the **Total Capacity** field, type at least the sum 24.

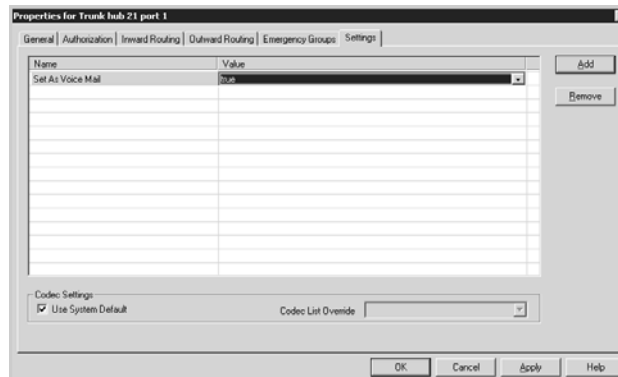
- 15 Select the **In Service** check box.



- 16 Click the **Outward Routing** tab and click **Add Extension**. Select your extension, this must be a Voice Mail type extension.

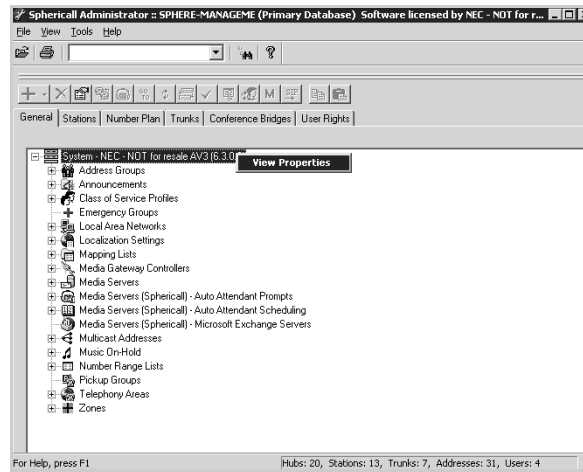


- 17 Select the first extension that you added earlier, in step 9 a then click **OK**.  
Repeat this step for all Voice Mail type extensions that you added in step 9 a and click **Apply**.
- 18 Click the **Settings** tab and click **Add**.
- 19 Select **Set As Voice Mail** as Name and **true** as Value.
- 20 Click **OK**.

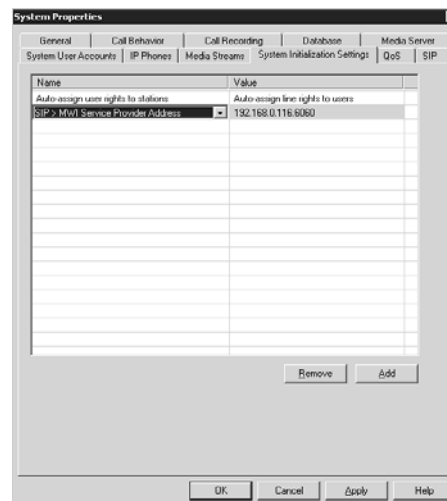


- 21 Verify that the extension is allocated to the trunk. If not, press **F5** to refresh the window.
- 22 In the Spherical Administrator click the **General** tab.

23 Right-click the + and select **View Properties**.



24 In the System Properties Window, click the **System Initialization Settings** tab.



a Click **Add**.

b Select the messaging system server IP Address from the **SIP > MWI Service Provider Address** followed by :6060. For example, 192.168.0.116 : 6060 .

This setting is used by the Sphere and the messaging system to send Message Waiting Indicator requests throughout the system.

c Click **OK** to close the System Properties window.

d Configure the Sphere system MWI using the Sphere system documentation.

25 Close the Spherical Administrator.

26 Restart the messaging system.

# Configuring UNIVERGE UM8500 for integration

After ensuring that the messaging system server is ready for the integration by completing installation and configuring the Sphere SIP integration procedures in the *Installation Guide*, complete the following procedure to confirm that the integration is enabled.

## To configure the extension numbers and the IP address of the PBX

- 1 If the messaging system is running, stop it.
- 2 Browse to the \Commserver\Utilities directory.
- 3 Double-click **VoipAdmin.exe**.

The VoipAdmin Tool appears

VoIPAdmin Tool - Basic Settings

IP Protocol: ☐ NEC Protims ☐ NEC SIP ☒ Standard SIP ☐ Meet IP

The following properties are required for the Standard SIP integration:

Network Adapter: 3Com 3C920 Integrated Fast Ethernet Controller (3C920C.TX Compatible) - RtpBridge Min

Extensions Type: Sphere SIP Server IP Address: 192.168.0.96

Password Type: Same as extension SIP Server Domain Name: mysphere.com

SIP Proxy IP Address:

☐ Peer To Peer ☒ Use Authentication

Manage ports (4):

Port ID	Extension	Password	Authname
1	7200		7200
2	7201		7201
3	7202		7202
4	7203		7203

Auto assign PrimeDNs starting from:

port: through: step: Assign

Help: Not available

Advanced Apply Exit

- 4 In the **IP Protocol** field, select **Standard SIP**.
- 5 In the **Network Adapter** field specify the network card that is connecting the messaging system server to the Sphere phone system.
- 6 In the **Extension Type** list select **Sphere**.
- 7 Type the *<IP address>* for the phone system in the **SIP Server IP Address** field
- 8 Type the *<Sphere domain name>* in the **SIP Server Domain Name** field.
- 9 Select **Use Authentication** if the SIP trunks are using authentication. If the SIP Trunks are not using authentication (if the Sphere was configured otherwise), clear this check box
- 10 Under **Manage ports**,
  - a click **Add** to add a new port.
  - b Type the extension number for each port. This information is available in the UM8500 Administrator and is used to integrate calls.
  - c If the Sphere administrator assigned passwords, type the password in the **Password** field. If passwords have not been assigned, leave the **Password** field blank.
- 11 Click **OK** to save the changes and then close VOIPAdmin.
- 12 Start UNIVERGE UM8500.

- 13 In Internet Explorer, go to the UM8500 Administrator  
(<http://<server name>/saweb>).
- 14 Go to **System > Ports** and check the extension of each port displayed in the Port Table section of the page.  
  
If the extensions are not correctly shown, stop the messaging system, verify the PBX settings made for the voice messaging ports. Use the VOIPAdmin Tool to make any necessary adjustments, see [“To configure the Sphere system and add voicemail ports.” on page 307](#).

### To confirm that the integration is enabled

- 1 In Internet Explorer, go to the UM8500 Administrator:  
<http://<server name>/saweb>
- 2 Go to **System > Licensing > Licensed Features**.
- 3 In the **Integration** box, confirm that the setting is **Standard SIP** or **Multiple**.
- 4 If the setting is not **Standard SIP** or **Multiple**, contact a sales representative for the system key.
- 5 Go to **System > Switch**. Confirm that the settings match those in the following table.

If the settings are incorrect, the integration features cannot be enabled.

#### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	Sphere
Switch PBX software version	Spherical v6.01 or later
Integration	Standard SIP

- 6 Close the UM8500 Administrator.
- 7 Shut down and restart the server.

## Changing the number of voicemail ports

To change the number of UM8500 ports after the Sphere system is installed and configured, complete the following procedures.

### To change the number of voicemail ports in Sphere System

- 1 On the UNIVERGE UM8500 system:
  - a Click **Start > Programs > UNIVERGE UM8500 > Applications > License Synchronizer**.
  - b Specify the path to the new license file.
  - c Restart the UM8500 system.
- 2 On the Sphericall system server:
  - a Open the Sphericall Administrator and add or remove voicemail lines, as appropriate.

To add voicemail ports, See [“To configure the Sphere system and add voicemail ports.” on page 307](#).

For information on removing voicemail ports, see the Sphere System administration online help.
  - b Shut down and restart the Sphere system server.

# Troubleshooting

If one of the problems listed below is encountered, try the corrective actions listed for the problem. If these actions do not correct the problem, or if the problem is not described here, contact Technical Support.

## Message waiting indicators are not working properly

If the message waiting indicators are not being turned on or off properly, perform the following procedure.

### To confirm that the message waiting indicator settings are correct

- 1 Make sure the settings from Sphere Administrator console are properly configured. See [“Configuring UNIVERGE UM8500 for integration” on page 313](#).
- 2 Restart the IP Phone. Phone switch settings are periodically renewed in SIP integrations and this might cause the message waiting indicator lamp to stop working. Restarting the phone sends all information to the switch and tells the messaging system to send the MWI settings.
- 3 From the phone where the message waiting indicator is not working properly, dial the extension that turns message waiting indicators on. The indicator on the phone should turn on. If it does not, the problem is with the Sphere system settings.
- 4 From the phone where the message waiting indicator is not working properly, dial the extension that turns message waiting indicators off. The indicator on the phone should turn off. If it does not, the problem is with the Sphere system settings.
- 5 Confirm that the ports specified for turning message waiting indicators on and off in Sphere system are the same as the ports specified in the Spherical Administrator.  
  
Refer to the Sphere system documentation for information about setting values in Sphere system. The parameters that control message waiting indicators are **MessageWaitingOn** and **MessageWaitingOff**.
- 6 Stop and start the Sphere system service.
- 7 Shut down and restart the messaging system server.
- 8 Contact Technical Support if the problem persists.

## Dual integration with the Sphere system through SIP trunks and traditional analog ports

UNIVERGE UM8500 can be integrated to the Sphere system simultaneously using SIP trunks and traditional Single Line Analog ports using the appropriate Media Gateway device. In a dual integration, UM8500 does not support receiving call information by using serial packets.

To transfer calls from the SIP Trunks to Single Line Analog ports, UM8500 must be configured to dial the same access codes that a subscriber must dial when calling the Media Gateway.

### Requirements

- A UNIVERGE UM8500 system key with the integration type set to "Multiple integrations," with the appropriate number of voice messaging ports enabled.
- The messaging system server is set up, UNIVERGE UM8500 is installed, and the Dialogic drivers are installed as described in the *Installation Guide*.
- When prompted to select the phone system, select **Sphere**.
- A Media Gateway device installed and configured on the Sphere system.
- Refer to the *Installation Guide* and this guide for details. See "[Integration overview](#)" on page 304 for information about integrating UM8500 with Sphere system.

### Setting up a UNIVERGE UM8500 with dual integration

#### To set up a UNIVERGE UM8500 with dual integration

- 1 Verify that your system key allows Multiple integrations and has Sphere as a feature programmed on it.
- 2 Verify that the Dialogic drivers are installed as described in the *Installation Guide*. If not, install them.
- 3 Install UNIVERGE UM8500 with Dialogic by selecting the following integration settings:

#### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	Sphere
Switch PBX software version	Sphericall 6.01 or later
Integration	Dual

- 4 After the messaging system running, only the dialogic ports are recognized.
- 5 Stop the Voicemail services.
- 6 Run the **MIUConfig.exe** tool from **\Commserver\Utilities** folder.  
Set it to **Miu VOIP**.
- 7 Click **Start > Programs > UNIVERGE UM8500 > Edit Switch Utility**.
- 8 In the Edit Switch Utility, select:

#### Phone system settings

Parameter	Required setting
Manufacturer	NEC
Model	Sphere
Switch PBX software version	Sphericall 6.01 or later
Integration	SIP Standard

- 9 Run **VoipAdmin.exe** from **\Commserver\Utilities** folder and make the necessary settings. See [“To configure the extension numbers and the IP address of the PBX” on page 313](#)
- 10 Run **MIUConfig.exe** tool from **Commserver\Utilities** folder.  
Set it to **VOIP and Dialogic**.
- 11 Your system is now configured for both integrations.

### To modify voice port settings

- Use the following settings for the voice port settings:

#### Dual-switch integration settings

Page	Field	Description
<b>System &gt; Switch &gt; Switch</b>	<b>Access code</b>	Type the access code that UM8500 uses when transferring calls to the media gateway
<b>System &gt; Ports</b>	<b>Port assignments</b>	Type the range of ports.
<b>Subscribers &gt; Subscriber Template &gt; Profile</b>	<b>Switch</b>	Select the Sphere system. If this setting is incorrect, UM8500 will not be able to: <ul style="list-style-type: none"> <li>• Transfer calls to or from the subscriber.</li> <li>• Turn MWIs on or off.</li> </ul> Dial the subscriber's extension for Media Master recording by phone.
<b>Subscribers &gt; Subscriber Template &gt; Message Notification</b>	<b>Switch</b>	Select the Sphere system. On the <b>System &gt; Ports</b> page, you must configure at least one port to dial out for message notification.
<b>Subscribers &gt; Subscribers &gt; Profile</b>	<b>Switch</b>	Select the Sphere system. If this setting is incorrect, UM8500 system will not be able to: <ul style="list-style-type: none"> <li>• Transfer calls to or from the subscriber.</li> <li>• Turn MWIs on or off.</li> <li>• Dial the subscriber's extension for Media Master recording by phone.</li> </ul> On the <b>System &gt; Ports</b> page, the system must have an appropriate number of ports set to answer calls and to dial out for MWIs and Media Master recording by phone.
<b>Call Handlers &gt; Profile</b>	<b>Switch</b>	Select the Sphere system. If this setting is incorrect, UM8500 system can not transfer calls to or from the call handler.



# ■ Standard SIP Integration

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide* to set up a SIP integration.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**

Verify that all phone system and UNIVERGE UM8500 server requirements have been met. See [“Requirements” on page 321](#).

- 2 Program the phone system and extensions.**

See [“Programming the phone system” on page 323](#).

- 3 Configure UNIVERGE UM8500 for the integration.**

See [“Configuring UNIVERGE UM8500 for the integration” on page 324](#).

## Requirements

The steps to set up the Standard SIP integration require the following:

### Phone system

- Any phone system that supports the following RFCs:

Standard or Reference	Title or Description
<b>RFC 3261</b>	<b>SIP: Session Initiation Protocol</b> Offers the main support for the SIP integration.
<b>RFC 3264</b>	<b>An Offer/Answer Model with the Session Description Protocol (SDP)</b> Used by UM8500 for multimedia session initiations (codec negotiation) for both incoming and outgoing calls.
<b>RFC 3265</b>	<b>Session Initiation Protocol (SIP) - Specific Event Notification</b> Used by UM8500 for message waiting indication (MWI).
<b>RFC 3515</b>	<b>The Session Initiation Protocol (SIP) Refer Method</b> Used by UM8500 for transferring calls. Used with both supervised and blind transfer.
<b>RFC 3891</b>	<b>The Session Initiation Protocol (SIP) 'Replaces' Header</b> Used by UM8500 for transferring calls. Used with supervised transfer only.
<b>RFC 3842</b>	<b>A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)</b> Used by UM8500 for message waiting indication (MWI).
<b>Draft-levy-sip-diversion-08.txt</b>	<b>Diversion Indication in SIP</b> Used by UM8500 for receiving incoming calls information data such as call reason or forwarding station.

- The phone system ready for SIP integration as described in the phone system documentation.
- A network switch with enough ports to handle all IP phones, the voice server and the phone system.

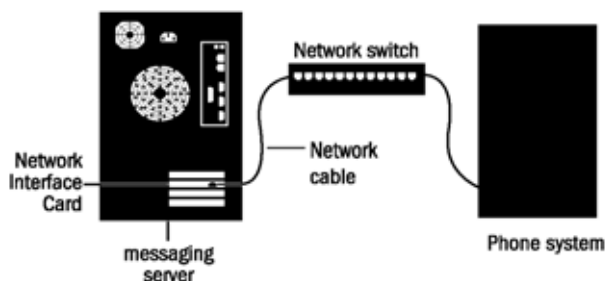
### UNIVERGE UM8500 server

- UNIVERGE UM8500 installed and ready for the integration as described in the *Installation Guide*.
- A system key that enables the integration and the appropriate number of voice messaging ports.
- A network cable to connect the voice server to the network containing the phone system.

## Integration description

### How the integration works

The standard SIP integration uses an Ethernet line to connect the phone system and UNIVERGE UM8500.



The phone system sends the following information with forwarded calls:

- The called party's extension.
- The calling party extension (for internal calls) or the calling party's phone number (if it is an external call and the system uses caller ID).

UM8500 uses this information to answer the call appropriately. For example, a call forwarded to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The Standard SIP integration provides the following features:

**Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.

**Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information displays in the message's subject line in Microsoft Outlook® (or other desktop messaging application).

**Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password may be required.

**Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call, based on the extension from which the call originated.

**Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension.

## Programming the phone system

Use the phone system documentation to program the phone switch for the SIP integration. This includes defining the voice mail port extensions.

# Configuring UNIVERGE UM8500 for the integration

After ensuring that the UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

## To configure the UM8500 server for integration

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Key Dump**.
- 2 Verify the **Integration** setting is **Standard SIP** or **Multiple Integrations**.
- 3 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 4 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

- Extension = 99995
- Password = 12345

- 5 Confirm that the settings match those in the following table. If the settings are incorrect, integration features may not be enabled.

### Phone system setting

Parameter	Required settings
Manufacturer	Defaults
Model	Default Parameters
Specific Version or Country	ALL
Integrations	Standard SIP

- 6 Stop UNIVERGE UM8500 if it is running.
- 7 Run VOIPAdmin.exe from Commserver\Utilities folder.  
The VoipAdmin Tool appears.
- 8 In the **IP Protocol** field, select **Standard SIP**.
- 9 Type the *<name>* or *<IP address>* of phone switch in the **PBX Name** or **IP Address** field.
- 10 The server name can be left blank.
- 11 Type the *<IP address>* of the SIP proxy in the **SIP Proxy IP Address** field.
- 12 Select the **Peer-to-Peer** or **User Authentication** check box as follows:
  - **Peer-to-Peer**. Select only if the port authentication does not required a password.
  - **Use Authentication**. Select only if the port authentication requires an authenticated username and password.
  - **Select neither**. Leave both selections unchecked if the port authentication requires a password.
- 13 Under **Manage Ports**,
  - a Click **Add** to add a new port.
  - b Type the information for each port.  
Type the **Extension** of each port as long as **Password** and **Authname** as required.
- 14 Click **OK** to save the changes and then close the VoipAdmin Tool.
- 15 Start UNIVERGE UM8500.
- 16 In your Internet browser, go to UM8500 Administrator  
(`http://<server name>/saweb`).

- 17 Go to **System > Ports** and check the extensions of each port displayed in the Port Table section of the page.

Type the extension for each port. The ports must appear in the same order as in VOIPAdmin Tool.





# ■ Toshiba CIX100/200/670, CTX 100/670, and StrataDK series

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# Integration overview

Use this section of the *Integration Guide* with the *Installation Guide*.

## Integration steps

Follow these steps to set up this integration.

- 1 Review the system and equipment requirements.**  
Verify that all phone system and messaging system server requirements have been met. See “[Requirements](#),” below.
- 2 Configure UNIVERGE UM8500 for the integration.**  
See “[Configuring UNIVERGE UM8500 for the integration](#)” on page 330.
- 3 Program the phone system and extensions.**  
See “[Programming the phone system](#)” on page 331.
- 4 Test the phone extensions.**  
Test the phone extensions that are set up for the integration. See Appendix B, “[Testing the extensions](#)” on page 338.
- 5 Run the Learn Tones utility.**  
Run the Learn Tones utility to teach the messaging system the tones associated with the phone system. See Appendix C, “[Learning phone system tones](#)” on page 340.

## Requirements

The steps to set up the Toshiba DK280/424 Simplified Message Desk Interface (SMDI) integration require the following:

### Phone system

- Toshiba DK280 or DK424 with an SMDI port installed.
- The phone system SMDI port must be connected to a serial port, COM1 is the default, on the UM8500 server with an RS-232 serial cable.
- The phone system voice messaging ports must be connected to the voice boards in the UM8500 server.
- The phone system ready for the integration as described in the phone system installation guide.

### UNIVERGE UM8500 server

- The Dialogic voice boards installed; see the *Installation Guide* for installation details.

#### NOTE

For the latest information on supported voice boards for UM8500, contact a sales representative.

- UM8500 installed and ready for the integration as described in the *Installation Guide*.

#### NOTE

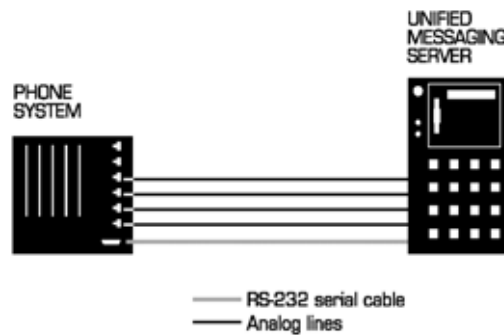
To ensure that Windows does not mistake the serial connection for a serial mouse when restarting the UM8500 server, confirm that the boot.ini file is set according to instructions. See the *Installation Guide* for more information.

- A system key that enables the integration and the appropriate number of voice messaging ports.
- An available serial port, COM1 is the default.

## Integration description

### How the integration works

The Toshiba DK280/424 SMDI integration uses a data link, which consists of an RS-232 serial cable connecting the phone system and the UNIVERGE UM8500 server. The phone system voice messaging lines connect to the analog voice boards in the UNIVERGE UM8500 server. The following illustration shows the required connections.



The phone system sends the following information through the data link:

- The called party's extension
- The reason for the forward, for example the extension is busy, does not answer, or is set to forward all calls
- The calling party's extension, for internal calls

uses this information to answer the call appropriately. For example, a call forwarded from a subscriber extension to UM8500 is answered with the subscriber's personal greeting. If the phone system routes the call to UM8500 without this information, UM8500 answers with the opening greeting.

### Integration features

The Toshiba DK280/424 SMDI integration with UNIVERGE UM8500 provides the following features:

- **Call forward to personal greeting.** When an incoming call is routed to an unanswered or busy extension, the call is forwarded to the subscriber's voice mail. The caller then hears the subscriber's personal greeting and can leave a message.
- **Caller ID.** UM8500 receives caller ID information from the phone system, if available. This information is displayed in the message's subject line in Microsoft Office Outlook® or other desktop messaging application.
- **Easy message access.** A subscriber can retrieve messages without entering an ID. UM8500 identifies a subscriber based on the extension from which the call originated. A password might be required.
- **Identified subscriber messaging.** UM8500 automatically identifies a subscriber who leaves a message during a forwarded internal call based on the extension from which the call originated.
- **Message waiting indication (MWI).** When a message is waiting for a subscriber, UM8500 notifies the phone system to activate the message waiting indicator on the subscriber's extension, if it is equipped with one, or to activate a stutter dial tone.

## Configuring UNIVERGE UM8500 for the integration

After ensuring that the UNIVERGE UM8500 server is ready for the integration by completing all appropriate tasks in the *Installation Guide*, perform the following procedure to confirm that the integration is enabled.

### To confirm that the integration is enabled

- 1 Click **Start > All Programs > UNIVERGE UM8500 > Edit Switch**.
- 2 If prompted for logon credentials, type the administrator extension and password, then click **OK**.

On a new install the logon credentials are:

Extension = 99995

Password = 12345

- 3 Confirm that the settings match those in the following table.

#### Phone system settings

Parameter	Required setting
Manufacturer	Toshiba
Model	DK 280 DK 424
Switch PBX software version	CPU A, B, C/D All
Integration	Serial

- 4 If the settings are incorrect, select the correct settings and click **Update Voice Mail Now**.

# Programming the phone system

If you use programming options other than those described in the following procedure, the integration's performance may be affected.

## NOTE

Always use an antistatic wrist strap or grounding device when handling boards or other components. Static electricity can damage the components in phone system equipment.

## To program the phone system

- 1 Select specific voice messaging system ports to be used for the integration, and the remaining ports to be used for the automated attendant, if appropriate.
- 2 On the phone system, activate the SMDI port.
- 3 In "System assignments," set the following:
  - Program 10-2 = LED 4 should be turned on for the voice messaging system to turn off message waiting indication.
  - Program 10-3 = LED 8, 9, 11, 13, 14, and 20 should be turned on for correct spacing and digit length. LED 8 allows the phone system to pass caller ID information to the voice messaging system.
- 4 In Program 13-1, enter the lowest standard phone port connected to the voice messaging system.
- 5 Set Program 31 = LED 4, 5, 9, 15-18 should be turned on.
- 6 For Toshiba DK280 release 3 or higher and DK424 systems, assign all phones connected to voice mail to the lowest standard phone port connected to the voice messaging system.

## NOTE

The PPTC connector is a special adapter that converts the six-conductor line cord to a DB 25 connection. The default pinouts from Toshiba will not work. Use the following pinouts so the packet data is able to transmit and receive all information correctly.

### Modular to PPTC 25 Pinout

1 to 7
2 to 8
3 to 20
4 to 6
5 to 2
6 to 3
Short pins 4 and 5 on the PPTC connector

### Modular to PPTC 9 Pinout

1 to 5
2 to 1
3 to 4
4 to 6
5 to 3
6 to 2
Short pins 7 and 8 on the PPTC connector



# Shutting down and starting the messaging server

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# Shutting down and starting UNIVERGE UM8500

The messaging system is configured to start automatically whenever the server starts. However, the Status Monitor can start and stop the messaging system without a system shutdown. The Status Monitor also provides information about ports, licenses, and reports.

When the messaging system has started successfully, three tones play and a check mark appears on the UM8500 icon in the taskbar notification area.

If for any reason, the messaging system does not start successfully, two tones play and an "X" appears on the UM8500 icon in the taskbar notification area.

## To shut down the messaging system

- 1 Use one of the following procedures to log on to the Status Monitor:

- On the messaging server, log on to Windows as an UNIVERGE UM8500 administrator.

Double-click the desktop shortcut to the Status Monitor or right-click the UM8500 icon in the taskbar notification area, then click **Launch Status Monitor**.

- If you are at another computer:

Start Internet Explorer, in the Internet Explorer address bar type:

```
http://<server name>/status
```

Where *<server name>* is the name of the voice messaging server.

- 2 On the Startup/Shutdown page of the Status Monitor, select a shutdown option:

- ⌘ **Wait until all calls are finished.** The messaging system shuts down after all calls are finished.
- ⌘ **Send voice message before terminating all calls.** The messaging system interrupts calls in progress, notifying users that calls are being disconnected. Calls are disconnected then the server shuts down.

- 3 Click **Shut down**.

On the messaging system server, an "X" appears on the UM8500 icon in the taskbar notification area when the messaging system is shut down.

## To start the messaging system

The messaging system starts automatically when the server is turned on or restarted. Use this procedure to start the messaging system only if the messaging system was shut down and the server was not restarted.

- 1 Use one of the following procedures to log on to the Status Monitor:

- On the messaging server, log on to Windows as an UNIVERGE UM8500 administrator.

Double-click the desktop shortcut to the Status Monitor or right-click the UM8500 icon in the taskbar notification area, then click **Launch Status Monitor**.

- If you are at another computer:

Start Internet Explorer, in the Internet Explorer address bar type:

```
http://<server name>/status
```

Where *<server name>* is the name of the voice messaging server.

- 2 Click the UM8500 icon in the taskbar notification area.

- 3 Click **Start**.

When the messaging system starts successfully, three tones play and a check mark appears on the UM8500 icon in the taskbar notification area.



If the messaging system does not start successfully, two tones play and an “X” appears on the UM8500 icon in the taskbar notification area.

- 4 If you are at the messaging system server, press **CTRL+ALT+DELETE**, then lock or log off Windows to prevent access by unauthorized users.



**B**

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# Testing the extensions

Test each extension to confirm that the phone system is programmed correctly.

## What is needed for the test

- A standard analog phone set with a ringer to use as a test set. If the messaging system uses feature phone sets, use a feature set for the tests.
- If using an analog test phone, and if the voice boards use RJ-14 connectors with two extensions per connector, then a line splitter might be needed to separate the two extensions carried by each phone line.
- A system manager phone set.

## Steps to test the extensions

- 1 Connect the phone system to the test phone set using a line designated as a messaging system extension.
- 2 Confirm that the phone system identifies DTMF dialing through the test extension.  
Dial a station phone from the test phone. The station phone should ring.
- 3 Confirm that the phone system transmits DTMF tones to the test extension.  
Dial a station phone from the test phone. Have someone answer the station phone and enter a digit. You should hear the tone on the test phone. Repeat this test for each type of station connected to the phone system, for example, analog, feature set, or operator.
- 4 Confirm that the test phone can access outside lines.  
Dial a number outside of the phone system from the test phone. You should reach the number.
- 5 Confirm that the phone system generates rings on the test extension.  
From a station phone, dial the extension for the test phone. The test phone should ring.
- 6 Confirm that trunk routing is set up correctly for extensions that answer trunk calls.  
From a line outside the phone system, dial the number designated for the messaging system. Answer the test phone, perform a hookflash (timed break recall), then dial a station phone. Listen for ringing, then hang up the test phone. The call should be transferred to the station you dialed.
- 7 Check that trunk routing is set up correctly for extensions that only answer calls from stations, for phone systems that support trunk routing.  
Dial the test phone extension from a station phone. Answer the test phone, perform a hookflash (timed break recall), then dial a station phone. Listen for ringing, then hang up the test phone. The call should be transferred to the station you dialed.

# Learning the phone system tones

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## Learning phone system tones

UNIVERGE UM8500 comes with template files for a variety of phone systems. These template files should work with most phone systems without modification. However, problems with transfers, message waiting indication, and message notification can arise if UM8500 does not understand the phone system tones. If any of these problems occur, run the Learn Tones utility to modify the phone system template file.

The Learn Tones utility learns the frequency and cadence of the phone system tones, such as busy and ringback, and teaches them to UM8500. It also learns the central office dial tone. Once the utility is started, the process is automatic. One messaging port calls other ports to generate the tones. The utility then adds the tone information to the phone system template file.

The Learn Tones utility requires exclusive access to the ports. Therefore, run it when UNIVERGE UM8500 is not taking calls.

### To run the Learn Tones utility

- 1 In the UM8500 Administrator, go to **System > Switch**.
- 2 In the Set Active Switch Type section, verify all values.
- 3 Correct any incorrect values for the phone system.
- 4 If values in step 3 were changed, click **Save**.
- 5 Shut down UM8500. For more information, see [“To shut down the messaging system” on page 334](#).
- 6 Click **Start > Programs > UNIVERGE UM8500 > Learn Tones**.
- 7 Confirm that all ports and extensions are correct. Do not use a hunt group for the helper extensions.

Use manual mode when you want the primary port to call a specified extension rather than a helper port. You will be prompted to answer the extension and busy it. You also use manual mode when some aspect of the phone system programming, such as forwarding when a line is busy, conflicts with the tone-learning process.

- 8 Type 1000 in the **Delay between calls** box.
- 9 Type 25 in the **Deviation threshold** box. Values outside the **Deviation threshold** are discarded.
- 10 In the Dialtone section, click **Learn**, and the utility begins learning the phone system dial tones. This can take a few minutes.  
  
If a “Success” message appears, go to step 11.  
  
If a “Failure” message appears, resolve the problem and repeat this step. For more information, see [“Troubleshooting the Learn Tones utility” on page 341](#).
- 11 In the Busy section, click **Learn**, and the utility begins learning the phone system busy tones. This can take a few minutes.  
  
If a “Success” message appears, continue with step 12.  
  
If a “Failure” message appears, resolve the problem and repeat this step. For more information, see [“Troubleshooting the Learn Tones utility” on page 341](#).
- 12 In the Ringback section, click **Learn**, and the utility begins learning the phone system ringback tones. This can take a few minutes.  
  
If a “Success” message appears, continue with step 13.  
  
If a “Failure” message appears, resolve the problem and repeat this step. For more information, see [“Troubleshooting the Learn Tones utility” on page 341](#).  
  
Click **Save**. The Learn Tones utility automatically verifies tones after it learns them, so there is no need to click **Verify all** before saving the learned tones.
- 13 In the dialog box that appears, select the **Dialtone**, **Busy**, and **Ringback** check boxes, then click **OK**.

**14** Accept the default file name, and click **Open**. Changes to the phone system template file are saved.

**15** Click **Done** to exit the Learn Tones utility.

Restart UM8500. For more information see [“To start the messaging system” on page 334](#).

### **Troubleshooting the Learn Tones utility**

If the learn tones process fails, the phone system might not be generating a tone for a sufficient length of time. To adjust the length of the tone that Learn Tones expects, in the Learn Tones window change the number in the Frames column. For continuous tones, one sample is one second; for tones with cadence, one sample is one cycle.

The process might also fail if the first few seconds of the tone varies from the rest of the tone. To accommodate this situation, in the Learn Tones window change the number in the Delay column.

If you need assistance resolving these or other problems, call Technical Support.

